RADIO TUBE MANUAL

DATA FOR EARLY TUBES THROUGH LOKTALS

ANTIQUE ELECTRONIC SUPPLY

Tempe, Arizona

1985

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Please read the following notes carefully. They explain the symbols and abbreviations which are used.

The following system for describing the type of base and for referring to the base connection diagram is used in the column headed "Basing Data":

The symbol at the left of the hyphen refers to the base connection diagram.

The symbol at the right of the hyphen indicates the type of base and the number of contact pins in accordance with the following:

First Letter:
- M Miniature Base
- O Octal Base
- L Locking Base
- S Standard Base

Second Letter:
- B Button Base (a shell is not incorporated)
- M Medium Shell (bakelite)
- S Small Shell (bakelite)
- W Wafer Base (metal tube or bantam tube with metal shell)
- GT Intermediate (bantam) Shell (bakelite)

Numeral indicates the number of pins in base.

"B" after numeral indicated bayonet pin in base.

Examples:

4C-SS4B. Diagram 4C, standard small shell with bayonet, 4 pin.

6G-SM6. Diagram 6G, standard medium shell, 6 pin.

7Q-0W7. Diagram 7Q, octal wafer base, 7 pin.

The column headed "Max Size View" shows the number of the tube outline drawing which gives dimensions. Although the letter in the symbol is arbitrarily chosen, the number refers to the bulb size. Thus 14C means that the tube has a size 14 bulb and that its outline drawing and dimensions are given in the "C" drawing for size 14 bulbs. Since the unit of bulb size is 1/8", a size 14 bulb is nominally 1-3/4" at its largest diameter.

*Indicates that capacitance is measured with standard tube shield connected to cathode. In the case of a metal type, the metal shell is connected to cathode.

"C" after figure in "Mutual Conductance" column indicates that value is for conversion transconductance. (Used for converter types only.)

"S" after figure in "Plate Volts" column indicates that value shown is anode supply voltage and that it is applied through the indicated value of G_2 resistor. (Also used only for converter types.)

Capacities shown for converter types are for the mixer section only.

Values of Plate Ma., Screen Ma., and Output Watts for push-pull operation are for two tubes, and value of load resistance is from plate to plate.

Values of Grid Volts for filament type tubes are measured from the negative filament terminal. Values of Cutoff Bias are approximate.

Other abbreviations that are used throughout the Tube Data Chart have the following meaning:

AMP CL A = Amplifier class A
BIAS DET = Bias detector
BM PWR = Beam power tube
CL A 1 SECT = Class A, one section
CL A 2 SECT = Class A, two sections
CL AB 2 Tube = Class AB, 2 tubes connected in a push-pull
DI BEAM PR AMP = Diode-beam power amplifier
DI TRI = Diode-triode
DI-PENT = Diode - pentode
DIR C'P'D AMP = Direct-coupled amplifier
DUO-DI = Duo-diode
ELEC RAY = Electron - ray tube
FIL = Filament
FW RECT = Full-wave rectifier
HF AMP = High-frequency amplifier
HTR = Heater
HW RECT = Half-wave rectifier
MIXER HEPT = Mixer heptode
MUT COND = Mutual conductance (same as transconductance)
OSC SECT = Oscillator section
PENT CL A = Pentode, class A
PENT CONN = Connected as a pentode
PP CL A = Push-pull, class A
PR AMP = Power amplifier
SCR = Screen
TERM CONN = Terminal connection
TRI CL A = Triode, class A
TRI CONN = Connected as a triode
TRI IN PAR'L = Triodes in parallel
TRI HEX = Triode-hexode
TUNING IND = Tuning indicator tube
TW PENT = Twin pentode
TWIN-DI = Twin-diode
TWIN-TR = Twin-triode
V DOUBLER = Voltage doubler
VOLT RE = Voltage regulator

TYPE	DESIGN	CATHODE HTR OR FIL TYPE	VOLTS	AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfds	IN mmfds	OUT mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmhos	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
00A	TRIODE	FIL	5.0	.25	4D-SM4B	14B	8.5	3.2	2.0	DETECTOR	45	0		1.5		20	30000	666				00A
01A	TRIODE	FIL	5.0	.25	4D-SM4B	14D	8.1	3.1	2.2	AMP CL A	135	—9		3		8	10000	800				01A
0A3/VR75	DIODE	COLD			4AJ-OS8	12E	GAS FILLED			VOLT REG	75v	OUTPUT THROUGH A CURRENT RANGE 5-30ma										0A3/VR75
0A4G	GAS TRI	COLD			4V-OS6	12E				RELAY TUBE	MAX PEAK CATHODE CURRENT 100ma, MAX DC CATHODE CURRENT 25ma, STARTER ANODE DROP APPROX 60v, ANODE DROP APPROX 70v											0A4G
0B3/VR90	DIODE	COLD			4AJ-OS8	12E	GAS FILLED			VOLT REG	90v	OUTPUT THROUGH A CURRENT RANGE 5-30ma										0B3/VR90
0C3/VR105	DIODE	COLD			4AJ-OS8	12E	GAS FILLED			VOLT REG	105v	OUTPUT THROUGH A CURRENT RANGE 5-30ma										0C3/VR105
0D3/VR150	DIODE	COLD			4AJ-OS8	12E	GAS FILLED			VOLT REG	150v	OUTPUT THROUGH A CURRENT RANGE 5-30ma										0D3/VR150
0Z4 0Z4G	TWIN DIODE	COLD			4R-OW6 4R-OT5	8D 7A	GAS FILLED			FULL WAVE RECTIFIER	300 RMS MAX			75 ma MAX		30 ma MIN			TUBE DROP 24v			0Z4 0Z4G
0Z4A/1003	TWIN DIODE	COLD			4R-OW6	8D	GAS FILLED			FULL WAVE RECTIFIER	265 RMS MAX CONDITION I = SINGLE TUBE OPERATION (Applies to above) 365 RMS MAX CONDITION II = RESISTANCE PARALLEL OPERATION (Applies to above)			85ma MAX — 30ma MIN. TUBE DROP 24v. 85ma MAX — 30ma MIN. TUBE DROP 24v								0Z4A/1003
1A3	DIODE	HTR	1.4	0.15	5AP-MB7	5B				DETECTOR	117 MAX		0.5 MAX									1A3
1A4P	PENTODE	FIL	2.0	.06	4M-SS4	12H	.007°	5.0°	12°	AMP CL A	180	—3	67.5	2.3	0.8		1 MEG	750			—15	1A4P
1A4-T	TETRODE	FIL	2.0	.06	4K-SS4	12H	.012°	4.6	11	AMP CL A	180	—3	67.5	2.3	0.7	720	.96MEG	750			—15	1A4-T
1A5GT/G	PENTODE	FIL	1.4	.05	6X-OGT7	9H				POWER AMP CLASS A	90 85	—4.5 —4.5	90 85	4.0 3.5	0.8 0.7		.3 MEG .3 MEG	850 800	.115 .100	25000 25000		1A5GT/G
1A6	HEPTODE	FIL	2.0	.06	6L-SS6	12H	.25°	10.5	9.0	OSC SECT MIXER	135S 180	.05MEG —3	67.5	2.3 1.3	2.4		GRID #2 RES. .5 MEG	.02 MEG 300C			—22.5	1A6
1A7G 1A7GT	HEPTODE	FIL	1.4	.05	7Z-OS8 7Z-OW8	9P 9F	.30°	6.5°	11°	OSC SECT MIXER	90 90	.2 MEG 0	45	1.2 0.55	0.6		.8 MEG	250C			—3	1A7G 1A7GT
1B4/951	PENTODE	FIL	2.0	.06	4M-SS4	12H	.007°	5.0	11	AMP CL A	180 90	—3 —3	67.5 67.5	1.7 1.6	0.6 0.7	975 600	1.5MEG 1 MEG	650 600			—8 —8	1B4/951
1B5/25S	DUO-DI TRIODE	FIL	2.0	.06	6M-SS6	12B	3.6	2.0	3.0	AMPLIFIER CLASS A	135	—3		0.8		20	35000	575				1B5/25S
1B7G 1B7GT	HEPTODE	FIL	1.4	.1	7Z-OS8 7Z-OW8	9P 9F	.34°	7.0°	7.5°	OSC SECT MIXER	90 90	.2 MEG 0	45	1.6 1.5	1.3		.35MEG	350C			—14.5	1B7G 1B7GT
1B8GT	DI-TRI PENTODE	FIL	1.4	0.1	8AJ-OS8	9F				TRI CL A PENT CL A	90 90	0 —6.0	90	0.15 6.3	1.4	68	0.24	275 1150	.210	14000		1B8GT
1C5GT/G	PENTODE	FIL	1.4	.1	6X-OGT7	9H				POWER AMP CLASS A	90 83	—7.5 —7	90 83	7.5 7.0	1.8 1.6	180 165	.12MEG .11MEG	1550 1500	.240 .200	8000 9000		1C5GT/G
1C6 1C7G	HEPTODE	FIL	2.0	.12	6L-SS6 7Z-OS8	12H 12F	.3° .26°	10 10°	10 14°	OSC SECT MIXER	180S 180	.05MEG —3	67.5	3.3 1.5	2.0		GRID #2 RES. .7 MEG	.02 MEG 325C			—14	1C6 1C7G
1D5G-P	PENTODE	FIL	2.0	.06	5Y-OS7	12F	.007°	5.0°	11°	AMPLIFIER CLASS A	180 90	—3 —3	67.5 67.5	2.3 2.2	0.8 0.9	750 425	1 MEG .6 MEG	750 720			—15 —15	1D5G-P
1D5GT	TETRODE	FIL	2.0	.06	5R-OS7	12F	.012°	4.6°	11°	AMP CL A	180	—3	67.5	2.3	0.7		.96MEG	750			—15	1D5GT
1D7G	HEPTODE	FIL	2.0	.06	7Z-OS8	12F	.30°	10°	14°	OSC SECT MIXER	180S 180	.05MEG —3	67.5	2.3 1.3	2.4		GRID #2 RES .5 MEG	.02 MEG 300C			—22.5	1D7G

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TYPE	DESIGN	CATHODE HTR OR FIL			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		TYPE	VOLTS	AMPS			G-P mmfds	IN mmfds	OUT mmfds													
1D8GT	DI-TRI PENTODE	FIL	1.4	.1	8AJ-OGT8	9J				TRI CL A PENT CL A	90 90	0 —9	 90	1.1 5.0	 1.0	25	43500 .2 MEG	575 925	.200	12000		1D8GT
1E4G	TRIODE	FIL	1.4	.05	5S-OS7	9N	2.4	2.4	6.0	AMPLIFIER CLASS A	90 90	—3 0		1.4 4.5		14.5 14.5	19000 11200	760 1300				1E4G
1E5G-P	PENTODE	FIL	2.0	.06	5Y-OS7	12F	.007*	5.5*	12*	AMPLIFIER CLASS A	180 90	—3 —3	67.5 67.5	1.7 1.6	0.6 0.7	975 600	1.5MEG 1 MEG	650 600			—8 —8	1E5G-P
1E7G	TWIN PENTODE	FIL	2.0	.24	8C-OS8	12E		PUSH-PULL		CL A 1 SECT CL A 2 SECT	135 135	—4.5 —7.5	135 135	7.5 14	2.2 4.0		.26MEG	1425	.290 .575	16000 24000		1E7G
1F4 1F5G	PENTODE	FIL	2.0	.12	5K-SM5 6X-OM7	14D 14C		PUSH-PULL		PR AMP CL A CL AB 2 TUBE	135 180	—4.5 —7.5	135 180	8.0 19	2.4 5.5		.20MEG	1700	.310 1.25	16000 20000		1F4 1F5G
1F6 1F7G-H	DUO-DI PENTODE	FIL	2.0	.06	6W-SS6 7AD-OS8	12H 12F	.007* .01*	4 3.8*	9 9.5*	AMPLIFIER CLASS A	180	—1.5	67.5	2.2	0.7		1 MEG	650			—12	1F6 1F7G-H
1G4GT/G	TRIODE	FIL	1.4	.05	5S-OGT7	9H				AMP CL A	90	—6		2.3		8.8	10700	825				1G4GT/G
1G5G	PENTODE	FIL	2.0	.12	6X-OM7	14C				POWER AMP CLASS A	135 90	—13.5 —6	135 90	8.7 8.5	2.5 2.5		.16MEG .13MEG	1550 1500	.550 .250	9000 8500		1G5G
1G6GT/G	TWIN TRIODE	FIL	1.4	.1	7AB-OGT8	9H				CL A 1 SECT CL B 2 SECT	90 90	0 0		1.0 2.0		30 MAX SIG PLATE CUR—14ma	45000	675	.675	12000		1G6GT/G
1H4G	TRIODE	FIL	2.0	.06	5S-OS6	12E	5.0*	3.0*	3.0*	AMP CL A CL B 2 TUBE	180 157.5	—13.5 —15		3.1 1.0		9.3	10300	900	(SEE TYPE 30 ALSO) 2.1	8000		1H4G
1H5G 1H5GT/G	DIODE TRIODE	FIL	1.4	.05	5Z-OS7 5Z-OW7	9P 9F	1.1	.36	4.0	AMPLIFIER CLASS A	90	0		0.15		65	.24MEG	275				1H5G 1H5GT/G
1H6G	DUO-DI TRIODE	FIL	2.0	.06	7AA-OS8	12E	3.6*	2.0*	3.0*	AMPLIFIER CLASS A	135	—3		0.8		20	35000	575				1H6G
1J5G	PENTODE	FIL	2.0	.12	6X-0M7	14C				PR AMP CL A	135	—16.5	135	7.0	2.0	100	.1 MEG	1000	.45	13500		1J5G
1J6G	TWIN TR	FIL	2.0	.24	7AB-OS8	12E				CLASS B TWO SECT	135 135	0 —6		10 NO SIG 0.1 NO SIG					2.1 1.6	10000 10000		1J6G
1L4	PENTODE	FIL	1.4	0.05	6AR-MB7	5B	0.008	3.6	7.5	AMP CL A	90 90	0 0	90 67.5	4.5 2.9	2.0 1.2		0.35 0.6	1025 925			—8 —6	1L4
1LA4	PENTODE	FIL	1.4	.05	5AD-L8	9A				POWER AMP CLASS A	90 85	—4.5 —4.5	90 85	4.0 3.5	0.8 0.7		.3 MEG .3 MEG	850 800	.115 .100	25000 25000		1LA4
1LA6	HEPTODE	FIL	1.4	.05	7AK-L8	9A	.40	7.7	8.0	OSC SECT MIXER	90 90	.2 MEG 0	45	1.2 0.55	0.6		.6 MEG	250C			—3	1LA6
1LB4	PENTODE	FIL	1.4	.05	5AD-L8	9A				PR AMP CL A	90 45	—9 —4.5	90 45	5.0 1.6	1.0 0.3		.2 MEG .3 MEG	925 650	.200 .035	12000 20000		1LB4
1LB6	HEPTODE	FIL	1.4	0.05	8AX-L8	9A	0.20	8.0	7.0	MIXER SECT OSC SECT	90 OSC Grid Volt = 0	0	67.5	0.40 Peak OSC Grid Voltage Applied to Grid #3 = 10 min Volts	2.2		2 MEG	100C			—4.5	1LB6
1LC5	PENTODE	FIL	1.4	0.05	7AO-L8	9A	0.007	3.2	7.0	AMP CL A	90 45	0 0	45 45	1.15 1.10	0.20 0.25		1.5 0.7	775 750			—3 —3	1LC5
1LC6	HEPTODE	FIL	1.4	0.05	7AK-L8	9A	0.28	9.0	5.5	MIXER SECT OSC SECT	90 45	0 .2 MEG	35	0.75 1.4	0.70		.65	275C			—3	1LC6
1LD5	DI-PENT	FIL	1.4	0.05	6AX-L8	9A	0.20	3.2	6.0	AMP CL A	90 45	0 0	45 45	0.60 0.55	0.10 0.12		0.95 0.90	600 550				1LD5
1LE3	TRIODE	FIL	1.4	0.05	4AA-L8	9A	1.7	1.7	3.0	AMP CL A	90 90	—3 0		1.4 4.5			19000 11200	760 1300				1LE3

TYPE	DESIGN	TYPE	CATHODE HTR OR FIL VOLTS	CATHODE HTR OR FIL AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfds	CAPACITIES IN mmfds	CAPACITIES OUT mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
1LH4	DI-TRI	FIL	1.4	.05	5AG-L8	9A	1.2	2.0	2.4	AMP CL A	90	0		0.15		65	.24MEG	275				1LH4
1LN5	PENTODE	FIL	1.4	.05	7AO-L8	9A	.007	3.4	8.0	AMP CL A	90	0	90	1.6	0.35	880	1.1MEG	800			—4.5	1LN5
1N5G 1N5GT/G	PENTODE	FIL	1.4	.05	5Y-OS7 5Y-OW7	9P 9F	.007*	3.0	10.0	AMP CL A	90	0	90	1.2	0.3	1160	1.5MEG	750			—4	1N5G 1N5GT/G
1N6G 1N6GT	DI-PENT	FIL	1.4	.05	7AM-OS8 7AM-OW8	9N 9H				PR AMP CL A	90	—4.5	90	3.4	0.7		.3 MEG	800	.10	25000		1N6G 1N6GT
1P5GT/G	PENTODE	FIL	1.4	.05	5Y-OW7	9F	.007*	3.0	10.0	AMP CL A	90	0	90	2.3	0.7		.8 MEG	750			—12	1P5GT/G
1Q5GT/G	BEAM PWR AMP	FIL	1.4	.1	6AF-OGT7	9H				POWER AMP CLASS A	90 85	—4.5 —5.0	90 85	9.5 7.0	1.3 0.8			2200 1950	.27 .25	8000 9000		1Q5GT/G
1R4/1294	DIODE	HTR	1.4	0.15	4AH-L8	9A				DETECTOR	10 MAX		5.0 MAX									1R4/1294
1R5	HEPTODE	FIL	1.4	.05	7AT-MB7	5B	.4	7.0	7.0	OSC SECT MIXER	OSC GRID RES — .1 MEG 90	0	67.5	1.7	3.0	OSC GRID CUR — .25 MA	.5 MEG	300C			—15	1R5
1S4	PENTODE	FIL	1.4	.1	7AV-MB7	5B				PR AMP CL A	90 45	—7 —4.5	67.5 45	7.4 3.8	1.4 0.8		.1 MEG .1 MEG	1575 1250	.270 .065	8000 8000		1S4
1S5	DIODE PENTODE	FIL	1.4	.05	6AU-MB7	5B				DETECTOR AMP CL A	67.5	0	67.5	1.6	0.4		.6 MEG	625				1S5
1SA6GT	PENTODE	FIL	1.4	0.05	6BD-OW8	9E	0.01	5.2	8.6	AMP CL A	90 45	0 0	67.5 45	2.45 1.10	0.68 0.30		0.8 0.7	970 750			—5.5 —3.5	1SA6GT
1SB6GT	DI-PENT	FIL	1.4	0.05	6BE-OS7	9H	0.25	3.2	3.0	DET AMP CL A	90 45	0 0	67.5 45	1.45 0.6	0.38 0.16		0.7 0.9	665 500				1SB6GT
1T4	PENTODE	FIL	1.4	.05	6AR-MB7	5B	.01	3.6	7.5	AMP CL A	90 45	0 0	67.5 45	3.5 1.7	1.4 0.7		.5 MEG .35MEG	900 700			—16 —10	1T4
1T5GT	BM PWR	FIL	1.4	.05	6X-OGT7	9H				PR AMP CL A	90	—6	90	6.5	0.8			1150	.17	14000		1T5GT
1-V	DIODE	HTR	6.3	.3	4G-SS4	12B				H W RECT	325 RMS MAX			45 DC MAX TUBE DROP 20v AT 90ma DC								1-V
2A3	TRIODE	FIL	2.5	2.5	4D-SM4	16B				PR AMP CL A PUSH-PULL CL AB 2 TUBE	250 300 300	—45 —62 SELF		60 80 80	780 OHM BIAS RES	4.2	800	5250	3.5 15 10	2500 3000 5000		2A3
2A4G	GAS TRI	FIL	2.5	2.5	5S-OS7	12E				THYRATRON	200 RMS MAX			100 DC MAX TUBE DROP 12v							—9	2A4G
2A5	PENTODE	HTR	2.5	1.75	6B-SM6	14D	TRIODE CONNECTION			PR AMP CL A CL AB 2 TUBE	250 350	—20 —38		31 48	(SEE TYPE 6F6G ALSO)	6.8	2600		.85 13.0	4000 6000		2A5
2A6	DUO-DI TRIODE	HTR	2.5	.8	6G-SS6	12H	1.7	2.0	3.5	AMPLIFIER CLASS A	250	—2		0.9		100	91000	1100				2A6
2A7 2A7S	HEPTODE	HTR	2.5	.8	7C-SS7 7C-SS7	12H	.3*	8.5	9.0	OSC SECT MIXER	250S 250	.05MEG —3	100	4.0 3.5	2.7		GRID #2 RES .02 MEG .36MEG	550C			—35	2A7 2A7S
2B7 2B7S	DUO-DI PENTODE	HTR	2.5	.8	7D-SS7 7D-SS7	12H	.007*	3.5	9.5	AMPLIFIER CLASS A	250 100	—3 —3	125 100	9.0 5.8	2.3 1.7		.65MEG .30MEG	1125 950			—21 —17	2B7 2B7S
2C22	TRIODE	HTR	6.3	0.3	4AM-OW8	9S	3.6	2.2	0.7	AMP CL A	300	—10.5		11		20	6600	3000				2C22
2E5	ELEC RAY	HTR	2.5	.8	6R-SS6	12B				TUNING IND	250 THRU 1 MEG, TARGET 250v, GRID 0v FOR 90°, —8v FOR 0°											2E5
2S/4S	DUO DIODE	HTR	2.5	1.35	5D-SS5					DETECTOR				40 APPROX PER PLATE AT 50v DC								2S/4S

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TYPE	DESIGN	CATHODE HTR OR FIL TYPE	CATHODE HTR OR FIL VOLTS	CATHODE HTR OR FIL AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfds	CAPACITIES IN mmfds	CAPACITIES OUT mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
2W3GT	DIODE	FIL	2.5	1.5	4X-OW5	9E				H W RECT	350 RMS MAX			55 DC MAX								2W3GT
2X2/879	DIODE	HTR	2.5	1.75	4AB-SS4	12H				H W RECT	4500 RMS MAX			7.5 DC MAX								2X2/879
3A4	BM PWR	FIL	1.4	0.2	7BB-MB7	5B	0.2	4.8	4.2	PR AMP CL A	150 135	—8.4 —7.5	90 90	13.3 14.8	2.2 2.6		0.10 0.09	1900 1900	700 600	8000 8000		3A4
3A5	TWIN TRIODE	FIL	1.4 or 2.8	.22 .11	7BC-MB7	5B	3.2L 3.2R	0.9L 0.9R	1.0L 1.0R	H F AMP	90	—2.5		3.7		15	8300	1800				3A5
3A8GT	DI-TRI PENTODE	FIL	1.4 or 2.8	.1 .05	8AS-OGT8	9L	2.0 .012	2.6* 3.0	4.2 10*	TRI CL A PENT CL A	90 90	—FIL —FIL	 90	0.20 1.5	 0.5		.20MEG .8 MEG	325 750				3A8GT
3B5GT	BM PWR	FIL	1.4 or 2.8	0.10 0.05	7AP-OGT7	9H	PARALLEL FIL SERIES FIL			PR AMP CL A	45 67.5	—4.5 —7	45 67.5	4.4 6.7	0.3 0.5		0.1 0.1	1400 1500	.070 .180	8000 5000		3B5GT
3B7/1291	TWIN TRIODE	FIL	1.4	.22	7BE-L8	9A	2.6L 2.6R	1.4L 1.4R	1.8L 2.6R	AMP OSC CLASS B	135 90	0		19 10.4		20 20		1900 1850	1.5 1.0	16000 8000		3B7/1291
3C5GT	BM PWR	FIL	1¾ or 2.8	0.1 0.05	7AP-OGT7	9H	PARALLEL FIL SERIES FIL			PR AMP CL A	90 90	—9 —9	90 90	6 6	1.4 1.4			1550 1450	.240 .260	10000 10000		3C5GT
3D6/1299	BM PWR	FIL	1.4 or 2.8	.220 .110	6BB-L8	9A	PARALLEL FIL SERIES FIL			PR AMP CL A	150 135	—4.5 —4.5	90 90	9.8 9.8	1.0 1.2			2400 2400	.600 .500	14000 12000		3D6/1299
3LE4	BM PWR	FIL	1.4 or 2.8	0.1 0.05	6BA-L8	9A	PARALLEL FIL SERIES FIL			PR AMP CL A	90 90	—9 —9	90 90	10.0 8.8	2 1.8		0.10 0.11	1700 1600	.325 .300	6000 6000		3LE4
3LF4	BM PWR	FIL	1.4 or 2.8	0.1 0.05	6BA-L8	9A	PARALLEL FIL SERIES FIL			PR AMP CL A	90 90	—4.5 —4.5	90 90	9.5 8.0	1.3 1.0		0.75 0.80	2200 2000	.270 .230	8000 8000		3LF4
3Q4	BM PWR	FIL	1.4 or 2.8	0.1 0.05	7BA-MB7	5B	PARALLEL FIL SERIES FIL			PR AMP CL A	90 90	—4.5 —4.5	90 90	9.5 7.7	2.1 1.7		0.10 0.12	2150 2000	.250 .240	10000 10000		3Q4
3Q5GT/G	BM PWR	FIL	1.4 or 2.8	.1 .05	7AP-OGT7	9H	PARALLEL FIL SERIES FIL			PR AMP CL A	90 90	—4.5 —4.5	90 90	9.5 8.0	1.3 1.0		.075MEG .08 MEG	2200 2000	.270 .230	8000 8000		3Q5GT/G
3S4	PENTODE	FIL	1.4 or 2.8	.1 .05	7BA-MB7	5B	PARALLEL FIL SERIES FIL			POWER AMP CLASS A	90 90	—7 —7	67.5 67.5	7.4 6.1	1.4 1.1		.1 MEG .1 MEG	1550 1425	.270 .235	8000 8000		3S4
4A6G	TWIN TRIODE	FIL	2.0 or 4.0	.12 .06	8L-OS8	12E				CL A 1 SECT CL B 2 SECT	90 90	—1.5 —1.5		1.1 1.1	MAX SIG PLATE CUR—10.8ma	20	26600	750	1.0	8000		4A6G
5R4GY	TWIN DIODE	FIL	5.0	2.0	5T-OM5	16A				FULL WAVE RECTIFIER	1000 RMS MAX COND IN 150 DC MAX 950 RMS MAX CHOKE IN 175 DC MAX						TUBE DROP 50v AT 175ma DC					5R4GY
5T4	TWIN DIODE	FIL	5.0	2.0	5T-OW5	10C				FULL WAVE RECTIFIER	450 RMS MAX COND IN 225 DC MAX 550 RMS MAX CHOKE IN 225 DC MAX						TUBE DROP 45v AT 225ma DC					5T4
5U4G	TWIN DIODE	FIL	5.0	3.0	5T-OM8	16A				FULL WAVE RECTIFIER	450 RMS MAX COND IN 225 DC MAX 550 RMS MAX CHOKE IN 225 DC MAX						TUBE DROP 58v AT 225ma DC					5U4G
5V4G	TWIN DIODE	HTR	5.0	2.0	5L-OM5	14C				FULL WAVE RECTIFIER	375 RMS MAX COND IN 175 DC MAX 500 RMS MAX CHOKE IN 175 DC MAX						TUBE DROP 23v AT 175ma DC					5V4G
5W4 5W4GT/G	TWIN DIODE	FIL	5.0	1.5	5T-OW5 5T-OGT5	8H 9HB				FULL WAVE RECTIFIER	350 RMS MAX COND IN 100 DC MAX 500 RMS MAX CHOKE IN 100 DC MAX						TUBE DROP 45v AT 100ma DC					5W4 5W4GT/G
5X3	TWIN DI	FIL	5.0	2.0	4C-SM4	14D				F W RECT	1275 RMS MAX COND IN 30 DC MAX											5X3
5X4G	TWIN DI	FIL	5.0	3.0	5Q-OM8	16A				F W RECT	450 RMS MAX COND IN 225 DC MAX 550 RMS MAX CHOKE IN 225 DC MAX						TUBE DROP 58v AT 225ma DC					5X4G

TYPE	DESIGN	TYPE	CATHODE HTR OR FIL VOLTS	CATHODE HTR OR FIL AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfds	CAPACITIES IN mmfds	CAPACITIES OUT mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
5Y3GT/G 5Y4G	TWIN DIODE	FIL	5.0	2.0	5T-OM5 5Q-OM8	9HB 14C				FULL WAVE RECTIFIER	350 RMS MAX COND IN 125 DC MAX 500 RMS MAX CHOKE IN 125 DC MAX						TUBE DROP 60v AT 125ma DC					5Y3GT/G 5Y4G
5Z3	TWIN DI	FIL	5.0	3.0	4C-SM4	16B				F W RECT	450 RMS MAX COND IN 225 DC MAX 550 RMS MAX CHOKE IN 225 DC MAX						TUBE DROP 58v AT 225ma DC					5Z3
5Z4 5Z4GT/G	TWIN DIODE	HTR	5.0	2.0	5L-OW5 5L-OGT5	8H 9H				FULL WAVE RECTIFIER	350 RMS MAX COND IN 125 DC MAX 500 RMS MAX CHOKE IN 125 DC MAX						TUBE DROP 20v AT 125ma DC					5Z4 5Z4GT/G
6A3	TRIODE	FIL	6.3	1.0	4D-SM4	16B	16	7	5	PR AMP CL A PUSH-PULL CL AB 2 TUBE	250 325 325	—45 —68 SELF		60 80 80		4.2 750 OHM BIAS RES	800	5250	3.2 15 10	2500 3000 5000		6A3
6A4/LA	PENTODE	FIL	6.3	.3	5B-SM5	14D				PR AMP CL A PUSH-PULL CL AB 2 TUBE	180 250	—12 SELF	180 230	22 32	3.9	100 700 OHM BIAS RES	45500	2200	1.4 4.2	8000 16000		6A4/LA
6A5G	TRIODE	HTR	6.3	1.25	6T-OM8	16A	16	7	5	PR AMP CL A PUSH-PULL CL AB 2 TUBE	250 325 325	—45 —68 —SELF		60 80 80		4.2 850 OHM BIAS RES	800	5250	3.75 15 10	2500 3000 5000		6A5G
6A6	TWIN TRIODE	HTR	6.3	.8	7B-SM7	14D	(SEE TYPE 6N7G ALSO)			AMP CL A TRI IN PAR'L	294 250	—6 —5		7 6		35 35	11000 11300	3200 3100				6A6
6A7 6A7S 6A8 6A8G 6A8GT	HEPTODE	HTR	6.3	.3	7C-SS7 7C-SS7 8A-OW8 8A-OS8 8A-OW8	12H 12H 8F 12F 9F	.3* .03 .26* .26*	8.5 12.5 9.5* 9.5*	9.0 12.5 12* 12*	OSC SECT MIXER	250S 100 250 100	.05MEG .05MEG —3 —1.5	 100 50	4.0 2.0 3.5 1.1	 2.7 1.3	 	GRID #2 RES .02 MEG .36MEG .6 MEG	 550C 360C			—35 —20	6A7 6A7S 6A8 6A8G 6A8GT
6AB5/6N5	ELEC RAY	HTR	6.3	.15	6R-SS6	9R				TUNING IND	135 THRU .25 MEG, TARGET 135v, GRID 0v FOR 90°, —10.0v FOR 0°											6AB5/6N5
6AB6G	DUO TRIODE	HTR	6.3	0.5	7AU-OS7	12K	DRIVER TRIODE OUTPUT TRIODE			DIR C'P'D AMP	250 250	0 +		5 34		} 72	4000	1800	3.5	8000		6AB6G
6AB7/1853	PENTODE	HTR	6.3	.45	8N-OW8	8E	.015	8	5	HIGH FREQ AMPLIFIER	300 300	—3 —3	200 300	12.5 THRU .03 MEG	3.2	(OTHER VALUES SAME AS ABOVE)	.7 MEG	5000			—15 —22.5	6AB7/1853
6AC5G 6AC5GT	TRIODE	HTR	6.3	.4	6Q-OS6 6Q-OGT6	12E 9H	ONE 76 DRIVER TWO 76 DRIVERS			DIR C'P'D AMP PUSH-PULL CL B 2 TUBE	250 250 250	SUPPLIED BY DRIVERS 0		32 64 5 NO SIGNAL		125	36700	3400	3.7 9.5 8	7000 10000 10000		6AC5G 6AC5GT
6AC6GT	DUO TRIODE	HTR	6.3	1.1	7AU-OGT7	9H	DRIVER TRIODE OUTPUT TRIODE			DIR C'P'D AMP	180 180	0 +		7 45		} 54	18000	3000	3.8	4000		6AC6GT
6AC7/1852	PENTODE	HTR	6.3	.45	8N-OW8	8E	.015	11	5	HIGH FREQ AMPLIFIER	300 300	SELF SELF	150 300	10 THRU .06 MEG	2.5	(OTHER VALUES SAME AS ABOVE)	1.0MEG	9000	160 OHM—BIAS RES REMOTE			6AC7/1852
6AD5G	TRIODE	HTR	6.3	0.3	6Q-OS6	12E	3.3	4.1	3.9	AMP CL A	250	—2		0.9		100	66000	1500				6AD5G
6AD6G	TWIN ELEC RAY	HTR	6.3	.15	7AG-OW7	9C				TUNING INDICATOR	TARGET 150v CONTROL ELECTRODE 75v AT 0°, 8v AT 90°, —50v AT 135° TARGET 100v CONTROL ELECTRODE 45v AT 0°, 0v AT 90°, —23v AT 135°											6AD6G
6AD7G	TRIODE PENTODE	HTR	6.3	.85	8AY-OM8	14C	TRIODE SEC PENTODE SEC			AMP CL A PR AMP CL A	250 250	—25 —16.5	250	3.7 34	6.5	6	19000 80000	325 2500	3.2	7000		6AD7G
6AE5GT/G	TRIODE	HTR	6.3	.3	6Q-OGT6	9H				AMP CL A	95	—15		7		4.2	3500	1200				6AE5GT/G
6AE6G	DUO TRIODE	HTR	6.3	.15	7AH-OS7	12E				CONTROL FOR 6AD6G-6AF6G	250 250	—1.5 —1.5		6.5 4.5		25 33		1000 950	PLATE R PLATE L		—35 —9.5	6AE6G

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TYPE	DESIGN	CATHODE HTR OR FIL TYPE	VOLTS	AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfds	IN mmfds	OUT mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
6AE7GT	TWIN TRIODE	HTR	6.3	.5	7AX-OGT8	9H				DRIVER 1 SEC TRIODE	250	—13.5		5		14	9300	1500				6AE7GT
6AF5G	TRIODE	HTR	6.3	.3	6Q-OS6	12E				AMP CL A	180	—18		7		7.4	4900	1500				6AF5G
6AF6G	TWIN ELEC RAY	HTR	6.3	.15	7AG-OS7	9M				TUNING INDICATOR	TARGET 135v CONTROL ELECTRODE 81v AT 0°, 0v AT 100° TARGET 100v CONTROL ELECTRODE 60v AT 0°, 0v AT 100°											6AF6G
6AG5	PENTODE	HTR	6.3	0.3	7BD-MB7	5B	0.025	6.5	1.8	AMP CL A	250	—2	150	7	2		0.8MEG	5000			—8	6AG5
6AG7	PENTODE	HTR	6.3	.65	8Y-OW8	8H	.06*	13.0*	7.5*	AMP CL A	300	—3	150	30	7		0.13	11000	3	10000	—8	6AG7
6AH5G	PWR AMP	HTR	6.3	0.9	6AP-OM8	16A				PR AMP CL A	350	—18	250	54	2.5		33000	5200	10.8	4200		6AH5G
6AH7GT	TWIN TRI	HTR	6.3	.3	8BE-OGT8	9D	2.2(1) 3.0(2)	3.2(1) 2.9(2)	3.0(1) 2.6(2)	CL A 1 SECT	250 100	—9 —3.6		12 3.7		16 16	6600 10300	2400 1550			—30 —8.5	6AH7GT
6AK5	PENTODE	HTR	6.3	0.175	7BD-MB7	5A	0.01	4.3	2.1	AMP CL A	180	—2	120	7.7	2.4		0.69MEG	5100			—12	6AK5
6AK6	PENTODE	HTR	6.3	0.15	7BK-MB7	5B	0.12	3.6	4.2	POWER AMPLIFIER	180 135	—9 —6	180 135	15 11.5	2.5 2.0	400 360	.19MEG .17MEG	2300 2100	1.1 0.6	10000 12000		6AK6
6AL6G	BEAM PWR AMP	HTR	6.3	.9	6AM-OM7	16C				POWER AMP CLASS A	250 250	—14 SELF	250 250	72 75	5 5.4	170	22500 OHM BIAS RES	6000	6.5 6.5	2500 2500		6AL6G
6B4G	TRIODE	FIL	6.3	1.0	5S-OM8	16A	16	7	5	PR AMP CL A PUSH-PULL CL AB 2 TUBE	250 325 325	—45 —68 SELF		60 90 80		4.2 750 OHM BIAS RES	800	5250	3.2 15 10	2500 3000 5000		6B4G
6B5	DUO-TRI	HTR	6.3	.8	6AS-SM6	14D	DRIVER TRIODE OUTPUT TRIODE			DIR C'P'D AMP 2 TUBES CL A	325 325	0 +		9 51				See Type 6N8G Also		13.5	10000		6B5
6B6G	DUO-DI TRIODE	HTR	6.3	.3	7V-OS7	12F	1.3	2.7	4.5	AMPLIFIER CLASS A	250	—2		0.9		100	91000	1100				6B6G
6B7 6B7S	DUO-DI PENTODE	HTR	6.3	.3	7D-SS7 7D-SS7	12H	.007*	3.5	9.5	AMPLIFIER CLASS A	250 100	—3 —3	125 100	9.0 5.8	2.3 1.7		.6 MEG .3 MEG	1125 950			—21 —17	6B7 6B7S
6B8 6B8G 6B8GT	DUO-DI PENTODE	HTR	6.3	.3	8E-OW8 8E-OS8 8E-OW8	8F 12F 9G	.005 .01* 0.005*	8 3.6* 4.5*	9 9.5* 10*	AMPLIFIER CLASS A	250 100	—3 —3	125 100	10 5.8	2.3 1.7		.6 MEG .3 MEG	1325 950			—21 —17	6B8 6B8G 6B8GT
6C4	TRIODE	HTR	6.3	0.15	6BG-MB7	5B	1.6	1.8	1.3	H-F POWER TRIODE	250 100	—8.5 0		10.5 11.8			7700 6250	2200 3100				6C4
6C5 6C5G 6C5GT/G	TRIODE	HTR	6.3	.3	6Q-OW8 6Q-OS6 6Q-OW8	9D 12E 9E	2.0 2.2* 2.2*	3.0 4.4* 4.4*	11 12* 12*	AMPLIFIER CLASS A	250	—8		8		20	10000	2000				6C5 6C5G 6C5GT/G
6C6	PENTODE	HTR	6.3	.3	6F-SS6	12J	.007*	5.0	6.5	AMPLIFIER CLASS A	250 100	—3 —3	100 100	2.0 2.0	.5 .5		1.5MEG 1 MEG	1226 1185			—7 —7	6C6
6C7	DUO-DI TRIODE	HTR	6.3	.3	7G-SS7					AMP CL A	250	—9		5.5		20	16000	1250				6C7
6C8G	TWIN TR	HTR	6.3	.3	8G-OS8	12F				CL A 1 SECT	250	—4.5		3.2		38	22500	1600				6C8G
6D6	PENTODE	HTR	6.3	.3	6F-SS6	12J	.007*	4.7	6.5	AMP CL A	250 100	—3 —3	100 100	8.2 8.0	2.0 2.2		.8 MEG .25MEG	1600 1500			—50 —50	6D6

TYPE	DESIGN	CATHODE HTR OR FIL TYPE	VOLTS	AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfd	IN mmfd	OUT mmfd	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
6D7	PENTODE	HTR	6.3	.3	7H-SS7					AMP CL A	250 100	—3 —3	100 100	2.0 2.0	.5 .5		1.5MEG 1 MEG	1228 1185			—7 —7	6D7
6D8G	HEPTODE	HTR	6.3	.15	8A-OS8	12F	.2°	8.0°	11°	OSC SECT MIXER	250S 250	.05MEG —3	100	4.3 3.5	2.6		GRID #2 RES .02 MEG .4 MEG		550C		—35	6D8G
6E5	ELEC RAY	HTR	6.3	.3	6R-SS6	9R				TUNING IND	250 THRU 1 MEG, TARGET 250v, GRID 0v FOR 90°, —8v FOR 0°											6E5
6E6	TWIN TRI	HTR	6.3	.6	7B-SM7	14D	PUSH-PULL			CL A 1 SECT CL A 2 SECT	250 250	—27.5 —27.5		18 36		6	3500	1700	1.6	14000		6E6
6E7	PENTODE	HTR	6.3	.3	7H-SS7					AMP CL A	250 100	—3 —3	100 100	8.2 8.0	2.0 2.2		.8 MEG .25MEG	1600 1500			—50 —50	6E7
6F5 6F5G 6F5GT	TRIODE	HTR	6.3	.3	5M-OW5 5M-OS5 5M-OW5	8F 12F 9J	2.0 2.0 2.0°	6.0 2.5 6.0°	12 3.5 12°	AMPLIFIER CLASS A	250 100	—2 —1		0.9 0.4		100 100	66000 85000	1500 1150				6F5 6F5G 6F5GT
6F6 6F6G	PENTODE	HTR	6.3	.7	7S-OW7 7S-OM7	8H 14C	PENTODE CONNECTION			PR AMP CL A PUSH-PULL CL AB 2 TUBE	285 250 375 315	—20 —16.5 —26 —24	285 250 250 285	38 34 34 62	7 6.5 5 12	 (SEE TYPE 2A5 ALSO)	78000 80000	2550 2500	4.8 3.2 18.5 11	7000 7000 10000 10000		6F6 6F6G
6F7 6F7S	TRIODE PENTODE	HTR	6.3	.3	7E-SS7 7E-SS7	12H	2.0 .008°	2.5 3.2	3.0 12.5	TRI CL A PENT CL A	100 250	—3 —3	100	3.5 6.5	1.5	8 900	16000 .85MEG	500 1100	(SEE 6P7G ALSO)		—35	6F7 6F7S
6F8G	TWIN TR	HTR	6.3	.6	8G-OS8	12F	4.0L 3.6R	3.2L 3.0R	3.2L 3.8R	AMP CL A ONE SECT	250 90	—8 0		9.0 10.0		20 20	7700 6700	2600 3000				6F8G
6G6G	PENTODE	HTR	6.3	.15	7S-OS7	12E				POWER AMP CLASS A	180 135	—9 —6	180 135	15 11.5	2.5 2.0	400 360	.18MEG .17MEG	2300 2100	1.1 0.6	10000 12000		6G6G
6H4GT	DIODE	HTR	6.3	.15	5AF-OGT5	9H				DETECTOR	100 MAX			4 MAX			1000 AT .25ma					6H4GT
6H6 6H6G 6H6GT	TWIN DIODE	HTR	6.3	.3	7Q-OW7 7Q-OS7 7Q-OW7	8C 12E 9E	.1PP .1PP .1PP			DETECTOR	150 MAX			4 MAX EACH DIODE								6H6 6H6G 6H6GT
6J5 6J5GT/G	TRIODE	HTR	6.3	.3	6Q-OW6 6Q-OW6	8E 9E	3.4 3.8°	3.4 4.2°	3.6 5.0°	AMPLIFIER CLASS A	250 90	—8 0		9.0 10.0		20 20	7700 6700	2600 3000				6J5 6J5GT/G
6J6	TWIN TRIODE	HTR	6.3	0.45	7BF-MB7	5B	1.6	2.2	0.4	OSCILLATOR	100	—1		8.5		38	6000	5300				6J6
6J7 6J7G 6J7GT	PENTODE	HTR	6.3	.3	7R-OW7 7R-OS7 7R-OW7	8F 12F 9F	.005 .005° .005°	7 4.6° 4.6°	12 12° 12°	AMP CL A PENT CONN TRI CONN	250 100 250	—3 —3 —8	100 100	2.0 2.0 6.5	0.5 0.5	 20	1.5MEG 1.0MEG 10500	1225 1185 1900			—7 —7	6J7 6J7G 6J7GT
6J8G	TRIODE HEPTODE	HTR	6.3	.3	8H-OS8	12F	.01°	4.6°	10.5°	OSC-TRIODE MIXER HEPT	250S 250	.05MEG —3	100	5.0 1.2	2.9	TRIODE PLATE RESISTOR .02 MEG	4 MEG	290C			—20	6J8G
6K5G	TRIODE	HTR	6.3	.3	5U-OS7	12F	2.0	2.4	3.6	AMP CL A	250	—3		1.1		70	50000	1400				6K5G
6K6GT/G	PENTODE	HTR	6.3	.4	7S-OGT7	9H				POWER AMP CLASS A	315 250	—21 —18	250 250	25.5 32	4.0 5.5		75000 68000	2100 2300	4.5 3.4	9000 7600		6K6GT/G
6K7 6K7G 6K7GT	PENTODE	HTR	6.3	.3	7R-OW7 7R-OS7 7R-OW7	8F 12F 9F	.005 .007° .005°	7 5° 4.6°	12 12° 12°	AMPLIFIER CLASS A	250 250 100	—3 —3 —1	125 100 100	10.5 7.0 9.5	2.6 1.7 2.7		.6 MEG .8 MEG .15MEG	1650 1450 1650			—52.5 —42.5 —38.5	6K7 6K7G 6K7GT

TYPE	DESIGN	TYPE	CATHODE HTR OR FIL. VOLTS	AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfd.	IN mmfd.	OUT mmfd.	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
6K8 6K8G 6K8GT	TRIODE HEXODE	HTR	6.3	.3	8K-OW8 8K-OS8 8K-OW8	8GA 12F 9GA	.03 .08* .08*	6.6 4.6* 4.6*	3.5 4.8* 4.8*	OSC-TRIODE MIXER HEX	100 250 100	.05MEG —3 —3	 100 100	3.8 2.5 2.3	 6.0 6.2		 .6 MEG .4 MEG	3000 350C 325C	(TRIODE GRID 0v)		 —30 —30	6K8 6K8G 6K8GT
6L5G	TRIODE	HTR	6.3	.15	6Q-OS6	12E	2.7*	3*	5*	AMP CL A	250	—9		8		17	8900	1900			—20	6L5G
6L6 6L6G	BEAM PWR AMP	HTR	6.3	.9	7AC-OW7 7AC-OM8	10C 16A	2 TUBES 2 TUBES 2 TUBES			POWER AMP CLASS A PP CL A PP CL AB PP CL AB 2	350 250 270 360 360	—18 —14 —17.5 —22.5 —22.5	250 250 270 270 270	54 72 134 88 88	2.5 5.0 11 5 5		33000 22500 23500	5200 6000 5700	10.8 6.5 17.5 26.5 47	4200 2500 5000 6600 3800		6L6 6L6G
6L7 6L7G	HEPTODE	HTR	6.3	.3	7T-OW7 7T-OS7	8F 12F	.001 .005*	7.5 6*	11 10*	AMP CL A MIXER	250 250	—3 —6	100 150	5.3 3.3	6.5 9.2	670	.6 MEG 1 MEG	1100 350C	G3 AT G3 AT	—3v —15v	—15 —45	6L7 6L7G
6M8GT	TRIODE PENTODE	HTR	6.3	0.6	8AU-OGT8	9L	2.5 0.015	3.7 5.2	4.3 1.0	CL A TRIODE CL A PENTODE	100 100	—1 —3	 100	0.5 8.5	 2.7	100	91000 0.2MEG	1100 1900			 —35	6M8GT
6N6G	DUO TRI	HTR	6.3	.8	7AU-OM7	14C	DRIVER TRIODE OUTPUT TRIODE			DIR C'P'D AMP	300 300	0 +		8 45			 24000	(SEE TYPE 6B5 ALSO) 2400	4	7000		6N6G
6N7 6N7G	TWIN TRIODE	HTR	6.3	.8	8B-OW8 8B-OM8	8H 14C	(SEE TYPE 6A6 ALSO)			POWER AMP CL B 2 SECT	300	0		35	MAX SIG PLATE CUR—70ma				10	8000		6N7 6N7G
6P5G 6P5GT	TRIODE	HTR	6.3	.3	6Q-OS6 6Q-OGT6	12E 9H	2.6*	3.4*	5.5*	AMPLIFIER CLASS A	250 100	—13.5 —5		5 2.5		13.8 13.8	9500 12000	1450 1150				6P5G 6P5GT
6P7G	TRIODE-PENTODE	HTR	6.3	.3	7U-OS8	12F	2.0* .008*	3.5* 3.5*	3.0* 12*	OSC-TRIODE MIXER PENT	100 250	 —3	 100	2.4 2.8	 0.6		 2 MEG	(SEE TYPE 6F7 ALSO) 300C				6P7G
6Q7 6Q7G 6Q7GT	DUO-DIODE TRIODE	HTR	6.3	.3	7V-OW7 7V-OS7 7V-OW7	8F 12F 9F	1.5 1.3 1.6*	5.5 2.7 2.2*	5.0 4.5 5.0*	AMPLIFIER CLASS A	250 100	—3 —1.0		1.0 0.8		70 70	58000 58000	1200 1200				6Q7 6Q7G 6Q7GT
6R6G	PENTODE	HTR	6.3	0.3	6AW-OS6	12F	0.007	4.5	11	AMPLIFIER TELEVISION CIRCUITS	250	—3	100	7.0	1.7	1160	0.8MEG	1450			—42.5	6R6G
6R7 6R7G 6R7GT	DUO DI TRIODE	HTR	6.3	.3	7V-OW7 7V-OS7 7V-OGT7	8F 12F 9J	2.5 3.5	5.5 2.5	4.0 4.5	AMPLIFIER CLASS A	250	—9		9.5		16	8500	1900	.28	10000		6R7 6R7G 6R7GT
6S7 6S7G	PENTODE	HTR	6.3	.15	7R-OW7 7R-OS7	8GA 12F	.005 .008*	6.5 4.4*	10.5 8.0*	AMPLIFIER CLASS A	250 135	—3 —3	100 67.5	8.5 3.7	2.0 0.9		1 MEG 1 MEG	1750 1250			—38.5 —25	6S7 6S7G
6SA7 6SA7GT/G	HEPTODE	HTR	6.3	.3	8R-OW8 8AD-OW8	8E 9E	.13 .20	9.5 11.0	12 12	OSC SECT MIXER	OSC GRID RES — .02 MEG 250	—2	100	3.5	8.5	OCS GRID CUR — .5ma	1.0MEG	450C			—35	6SA7 6SA7GT/G
6SC7 6SC7GT	TWIN TRI	HTR	6.3	.3	8S-OW8 8S-OW8	8E 9H				CL A 1 SECT	250	—2		2		70	53000	1325				6SC7 6SC7GT
6SD7GT	PENTODE	HTR	6.3	3	8N-OW8	9E	.0035	9.0	7.5	AMP CL A	250 100	—2 —2	100 100	6.0 5.7	1.9 2.0		1.0MEG .25MEG	3600 3350			—11 —11	6SD7GT
6SE7GT	PENTODE	HTR	6.3	0.3	8N-OW8	9E	0.005	8.0	7.5	AMP CL A	250	—1.5	100	4.5	1.5		1.0MEG	3100			—5	6SE7GT
6SF5 6SF5GT	TRIODE	HTR	6.3	.3	6AB-OW6 6AB-OGT6	8E 9H	2.6 2.6*	4.2 4.2*	3.8 3.8*	AMPLIFIER CLASS A	250 100	—2 —1		0.9 0.4		100 100	66000 85000	1500 1150				6SF5 6SF5GT
6SF7	DIODE PENTODE	HTR	6.3	.3	7AZ-OW8	8E				AMP CL A	250 100	—1 —1	100 100	12.4 12.0	3.3 3.4		.7 MEG 2 MEG	2050 1975			—35 —35	6SF7

TYPE	DESIGN	CATHODE			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		TYPE	HTR OR FIL VOLTS	AMPS			G-P mmfds	IN mmfds	OUT mmfds													
6SG7	PENTODE	HTR	6.3	.3	8BK-OW8	8E				AMP CL A	250 100	—1 —1	125 100	11.8 8.2	4.4 3.2		.9 MEG .25MEG	4700 4100			—14 —11.5	6SG7
6SH7GT	PENTODE	HTR	6.3	0.3	8BK-OW8	9E	0.003	8.5	7.0	AMPLIFIER CLASS A	250 100	—1 —1	150 100	10.8 5.3	4.1 2.1		0.9MEG 0.35MEG	4900 4000			—5.5 —4	6SH7GT
6SJ7 6SJ7GT	PENTODE	HTR	6.3	.3	8N-OW8 8N-OW8	9E 9E	.005	6.0	7.0	AMPLIFIER CLASS A	250 100	—3 —3	100 100	3.0 2.9	0.8 0.9	2500 1100	1.5MEG 0.7MEG	1650 1575			—9 —9	6SJ7 6SJ7GT
6SK7 6SK7GT/G	PENTODE	HTR	6.3	.3	8N-OW8 8N-OW8	8E 9E	.003 .005*	6.0 6.5*	7.0 7.5*	AMPLIFIER CLASS A	250 100	—3 —1	100 100	9.2 13.0	2.6 4.0	2000 2350	0.8MEG .12MEG	2000 2350			—35 —35	6SK7 6SK7GT/G
6SL7GT	TWIN TR	HTR	6.3	0.3	8BD-OGT8	9H				CL A 1 SECT	250	—2		2.3		70	44000	1600				6SL7GT
6SN7GT	TWIN TR	HTR	6.3	.60	8BD-OGT8	9H	4L 4R	3.2L 3.8R	3.4L 2.6R	CL A 1 SECT	250 90	—8 0		9 10		20 20	7700 6700	2600 3000				6SN7GT
6SQ7 6SQ7GT/G	DUO-DI TRIODE	HTR	6.3	.3	8Q-OW8 8Q-OW8	8E 9E	1.8	4.2	3.4	AMPLIFIER CLASS A	250 100	—2 —1		0.9 0.4		100 100	91000 110000	1100 900				6SQ7 6SQ7GT/G
6SR7 6SR7GT	DUO-DI TRIODE	HTR	6.3	.3	8Q-OW8 8Q-OGT8	8E 9H	2.0 2.3*	3.4 3.5*	2.8 3.8*	AMP CL A	250	—8		9.5		18	8500	1900				6SR7 6SR7GT
6SS7	PENTODE	HTR	6.3	0.15	8N-OW8	8E	0.004	5.5	7.0	AMPLIFIER CLASS A	250 100	—3 —1	100 100	9.0 12.2	2.0 3.1		1.0MEG 0.12MEG	1850 1930			—35 —35	6SS7
6ST7	DUO-DI TRIODE	HTR	6.3	0.15	8Q-OW8	8E	1.5	2.8	3.0	AMP CL A	250	—9		9.5		18	8500	1900				6ST7
6T7G-6Q6G	DUO-DI TRIODE	HTR	6.3	.15	7V-OS7	12F	1.3	2.7	4.5	AMPLIFIER CLASS A	250 135	—3 —1.5		1.2 0.9		65 65	62000 65000	1050 1000				6T7G-6Q6G
6U5/6G5	ELEC RAY	HTR	6.3	.3	6R-SS6	9R				TUNING IND	250 THRU 1 MEG TARGET 250v, GRID 0v FOR 90°, —22v FOR 0° 100 THRU .5 MEG TARGET 100v, GRID 0v FOR 90°, — 8v FOR 0°											6U5/6G5
6U6GT	BEAM PWR AMP	HTR	6.3	.75	7AC-OGT7	9H				POWER AMP CLASS A	200 110	—14 —10.5	135 110	55 44	3 4		20000 10000	6200 5600	5.5 2.0	3000 2000		6U6GT
6U7G	PENTODE	HTR	6.3	.3	7R-OS7	12L	.007*	5*	9*	AMP CL A	250 100	—3 —3	100 100	8.2 8.0	2.0 2.2		.8 MEG .25MEG	1600 1500			—50 —50	6U7G
6V6 6V6GT/G	BEAM POWER AMP	HTR	6.3	.45	7AC-OW7 7AC-OW7	8H 9H		2 TUBES		AMPLIFIER CLASS A PP CL AB	315 250 250 285	—13 —12.5 —15 —19	225 250 250 285	34 45 70 70	2.2 4.5 5.0 4.0		77000 52000 60000 85000	3750 4100 3750 3600	5.5 4.5 10 14	8500 5000 10000 8000		6V6 6V6GT/G
6V7G	DUO-DI TRIODE	HTR	6.3	.3	7V-OS7	12F	1.7	2.0	3.5	AMPLIFIER CLASS A	250 180	—20 —13.5		8 6		8.3 8.3	7500 8500	1100 975	.35 .18	20000 20000		6V7G
6W5G	TWIN DI	HTR	6.3	.9	6S-OS6	12E				FULL WAVE RECTIFIER	325 RMS MAX COND IN 90 DC MAX 450 RMS MAX CHOKE IN 90 DC MAX						TUBE DROP 24v AT 90ma DC					6W5G
6W6GT	TETRODE PWR AMP	HTR	6.3	1.25	7AC-OGT7	9H				AMPLIFIER CLASS A	135	—9.5	135	58	2.8	215	24000	9000	3.3	2000		6W6GT
6W7G	PENTODE	HTR	6.3	.15	7R-OS7	12F	.007*	5.0*	8.5*	AMP CL A	250	—3	100	2.0	0.5		1.5MEG	1225			—7	6W7G
6X5 6X5GT/G	TWIN DIODE	HTR	6.3	.6	6S-OW6 6S-OGT6	8H 9H				FULL WAVE RECTIFIER	325 RMS MAX COND IN 70 DC MAX 450 RMS MAX CHOKE IN 70 DC MAX						TUBE DROP 22v AT 70ma DC					6X5 6X5GT/G

TYPE	DESIGN	CATHODE			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		TYPE	HTR OR FIL VOLTS	HTR OR FIL AMPS			G-P mmfds	IN mmfds	OUT mmfds													
6Y5	TWIN DIODE	HTR	6.3	.8	6J-SS6	12E	(MERCURY VAPOR)			FULL WAVE RECTIFIER	325 RMS MAX COND IN 60 DC MAX 450 RMS MAX CHOKE IN 60 DC MAX						TUBE DROP 20v AT 60ma DC					6Y5
6Y6G	BEAM PWR AMP	HTR	6.3	1.25	7AC-OM7	14C				POWER AMP CLASS A	200 135	—14 —13.5	135 135	61 58	2.2 3.5		18300 9300	7100 7000	8.0 3.8	2600 2000		6Y6G
6Y7G	TWIN TRIODE	HTR	6.3	.6	8B-OS8	12E				CL B AMP 2 SECTIONS	250 180	0 0		10.6 NO SIG 7.6 NO SIG					8 5.5	14000 7000		6Y7G
6Z5	TWIN DIODE	HTR	12.6 or 6.3	.4 .8	6K-SS6	12B				FULL WAVE RECTIFIER	325 RMS MAX COND IN 60 DC MAX 450 RMS MAX CHOKE IN 60 DC MAX						TUBE DROP 20v AT 60ma DC					6Z5
6Z7G	TWIN TRIODE	HTR	6.3	.3	8B-OS8	12E				CL B AMP 2 SECTIONS	180 135	0 0		8.4 NO SIG 6.0 NO SIG					4.2 2.5	12000 9000		6Z7G
6ZY5G	TWIN DI	HTR	6.3	.3	6S-OS6	12E				FULL WAVE RECTIFIER	325 RMS MAX COND IN 40 DC MAX 450 RMS MAX CHOKE IN 40 DC MAX						TUBE DROP 18v AT 40ma DC					6ZY5G
7A4	TRIODE	HTR	6.3	.3	5AC-L8	9A	4	3.4	3.0	AMPLIFIER CLASS A	250 90	—8 0		9 10		20 20	7700 6700	2600 3000				7A4
7A5	PENTODE	HTR	6.3	.75	6AA-L8	9B				POWER AMP CLASS A	125 110	—9 —7.5	125 110	44.0 40.0	3.3 3.0		17000 14000	6000 5800	2.2 1.5	2700 2500		7A5
7A6	DUO-DI	HTR	6.3	.15	7AJ-L8	9A	.05PP			DETECTOR	150 RMS MAX			8 DC MAX			TUBE DROP 11v AT 16ma DC					7A6
7A7	PENTODE	HTR	6.3	.3	8V-L8	9A	.005	6.0	7.0	AMP CL A	250 100	—3 —1	100 100	9.2 13.0	2.6 4.0	1600 1600	.8 MEG .12MEG	2000 2350			—35 —35	7A7
7A8	OCTODE	HTR	6.3	.15	8U-L8	9A	.15	7.5	9.0	OSC SECT MIXER	250S 250	.05MEG —3	100	4.2 3.0	3.2		GRID #2 RES .02 MEG .7 MEG	550C			—30	7A8
7B4	TRIODE	HTR	6.3	.3	5AC-L8	9A	1.6°	3.6°	3.4°	AMP CL A	100 250	—1 —2		0.5 0.9		100 100	85000 66000	1175 1500				7B4
7B5	PENTODE	HTR	6.3	.4	6AE-L8	9B				POWER AMP CLASS A	315 100	—24 —7	250 100	25.5 9.0	4.0 1.6		75000 .1 MEG	2100 1500	4.5 .35	9000 12000		7B5
7B6	DUO-DI TRIODE	HTR	6.3	.3	8W-L8	9A	1.5	3.0	3.0	AMPLIFIER CLASS A	250 100	—2 —1		0.9 0.4		100 100	91000 110000	1100 900				7B6
7B7	PENTODE	HTR	6.3	.15	8V-L8	9A	.007	5.0	6.0	AMP CL A	250 100	—3 —3	100 100	8.5 8.2	1.7 1.8		.7 MEG .3 MEG	1700 1675			—40 —40	7B7
7B8	HEPTODE	HTR	6.3	.3	8X-L8	9A	.2	10.0	9.0	OSC SECT MIXER	250S 100 250 100	.05MEG .05MEG —3 —1.5	100 50	4.0 2.0 3.5 1.1	2.7 1.3		GRID #2 RES .02 MEG .36MEG .8 MEG	550C 360C			—35 —20	7B8
7C4/1203A	DIODE	HTR	6.3	0.150	4AH-L8	9A	0.8	2.2	3.0	DETECTOR	117 MAX			5 MAX								7C4/1203A
7C5	BEAM PWR AMP	HTR	6.3	.45	6AA-L8	9B				AMPLIFIER CLASS A PP CL AB	315 250 250 285	—13 —12.5 —15 —19	225 250 250 285	34 45 70 70	2.2 4.5 5.0 4.0		77000 52000 60000 65000	3750 4100 3750 3600	5.5 4.5 10 14	8500 5000 10000 8000		7C5
7C6	DUO-DI TRIODE	HTR	6.3	.15	8W-L8	9A	1.4	2.4	3.0	AMPLIFIER CLASS A	250 100	—1 0		1.3 1.0		100 85	.1 MEG .1 MEG	1000 850				7C6

TYPE	DESIGN	CATHODE HTR OR FIL TYPE	VOLTS	AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfds	IN mmfds	OUT mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
7C7	PENTODE	HTR	6.3	.15	8V-L8	9A	.007*	5.5*	6.5*	AMPLIFIER CLASS A	250	—3	100	2.0	0.5		2 MEG	1300			—7	7C7
7E5/1201	TRIODE	HTR	6.3	.150	8BN-L8	9A	1.5	3.6	2.8	AMPLIFIER	180	—3.0		5.5		36	12000	3000				7E5/1201
7E6	DUO-DI TRIODE	HTR	6.3	.3	8W-L8	9A	1.5	3.0	3.4	AMP CL A	250	—9		9.5		16	8500	1900				7E6
7E7	DUO-DI PENTODE	HTR	6.3	.3	8AE-L8	9A	.005*	4.6*	4.6*	AMPLIFIER CLASS A	250 100	—3 —1	100 100	7.5 10.0	1.6 2.7		.7 MEG .15MEG	1300 1600			—42.5 — 36.0	7E7
7F7	TWIN TR	HTR	6.3	.3	8AC-L8	9A				CL A 1 SECT	250	—2		2.3		70	44000	1600				7F7
7G7/1232	PENTODE	HTR	6.3	.45	8V-L8	9A	.007*	9.0*	7.0*	AMP CL A	250	—2	100	6.0	2.0		.8 MEG	4500			—6	7G7/1232
7H7	PENTODE	HTR	6.3	.3	8V-L8	9A	.007*	8.0*	7.0*	AMP CL A	250 100	—2.5 —1	150 100	9.5 8.2	3.5 3.3		.8 MEG .25MEG	3800 3800			—19 —12	7H7
7J7	TRI HEX	HTR	6.3	.3	8AR-L8	9A	.01*	5.5*	7.5*	OSC-TRIODE MIXER HEX	250S 250	.05MEG —3	100	5.4 1.3	2.9	TRIODE PLATE RESISTOR .02 MEG	1.5MEG	300C			—20	7J7
7K7	DUO-DIODE	HTR	6.3	.3	8BF-L8	9A				AMPLIFIER CLASS A	250	—2		2.3		70	44000	1600				7K7
7L7	PENTODE	HTR	6.3	.3	8V-L8	9A	.01*	8.0*	6.5*	AMP CL A	250 100	—1.5 —1	100 100	4.5 5.5	1.5 2.4		1 MEG .1 MEG	3100 3000			—5 —5	7L7
7N7	TWIN TRIODE	HTR	6.3	.3	8AC-L8	9B	3.0L* 3.0R*	3.4L* 2.9R*	2.0L* 2.4R*	CL A 1 SECT	250 90	—8 0		9 10		20 20	7700 6700	2600 3000				7N7
7Q7	HEPTODE	HTR	6.3	.3	8AL-L8	9A	.2*	9.0*	9.0*	OSC SECT MIXER	OSC GRID RES —.02 MEG 250	—2	100	3.5	8.5	OSC GRID CUR —.5ma	1.0MEG	550C			—35	7Q7
7R7	DUO-DI PENTODE	HTR	6.3	.3	8AE-L8	9A	.004	5.6	5.3	AMP CL A	250 100	—1 —1	100 100	5.7 5.5	1.7 2.0		1.0MEG .35MEG	3200 3000			—20 —16	7R7
7S7	TRI HEX	HTR	6.3	0.30	8AR-L8	9A	0.04	5.5	9.0	OSC-TRIODE MIXER HEX	250S 250	.05MEG —2	100	5.0 1.7	2.2	TRIODE PLATE RESISTOR .02 MEG	2 MEG	600C			—21	7S7
7T7	PENTODE	HTR	6.3	0.3	8V-L8	9A	0.005	7.5	5.5	AMP CL A	250 100	—1 —1	150 100	10.8 5.3	4.1 2.1		0.9MEG 0.3MEG	4900 4000			—5.5 —4.0	7T7
7V7	PENTODE	HTR	6.3	0.45	8V-L8	9A	0.004	9.5	6.5	HIGH FREQ AMPLIFIER	300	—2	150	9.6	3.9		.3 MEG	5800			—6	7V7
7W7	PENTODE	HTR	6.3	0.45	8BJ-L8	9A	0.0025	9.5	7.0	HIGH FREQ AMPLIFIER	300 300	—2 —2	150 300 THRU .04 MEG (OTHER VALUES SAME AS ABOVE)	10.0	3.9		.3 MEG	5800			—6 —14	7W7
7Y4	TWIN DI	HTR	6.3	5	5AB-L8	9A				F W RECT	325 RMS MAX COND IN 60 DC MAX TUBE DROP 20v AT 60ma DC 450 RMS MAX CHOKE IN 60 DC MAX											7Y4
7Z4	TWIN DI	HTR	6.3	0.90	5AB-L8	9B				F W RECT	325 RMS MAX COND IN 100 DC MAX TUBE DROP 40v AT 80ma DC 450 RMS MAX CHOKE IN 100 DC MAX											7Z4
10	TRIODE	FIL	7.5	1.25	4D-3M4	16B	7	4	3	POWER AMP CLASS A	425 350	—39 —22.0		18 10		8 8	5000 6000	1800 1330	1.6 0.4	10200 13000		10
12A	TRIODE	FIL	5.0	.25	4D-SM4B	14D	7.5	4 0	3.0	AMPLIFIER CLASS A	180 135	—13.5 —9		7.7 6.2		8.5 8.5	4700 5100	1800 1650	.285 .130	10650 9000		12A

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TYPE	DESIGN	CATHODE HTR OR FIL TYPE	VOLTS	AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfds	IN mmfds	OUT mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
12A5	PENTODE	HTR	12.6 or 6.3	.3 .6	7F-SS7	12B				POWER AMP CLASS A	180 100	—25 —15	180 100	45 17	8 3		35000 50000	2400 1700	3.4 .08	3300 4500		12A5
12A6GT	BEAM PWR AMP	HTR	12.6	0.15	7AC-OGT7	9H	0.6	9.0	9.0	AMPLIFIER CLASS A	250	—12.5	250	30	3.5			3000	3.0	7500		12A6GT
12A7	DIODE PENTODE	HTR	12.6	.3	7K-SS7	12H				H W RECT AMP CL A	125 RMS MAX 135	—13.5	135	30 DC MAX 9	2.5	100	TUBE DROP 15v AT 60ma DC .1 MEG	975	.55	13500		12A7
12A8GT	HEPTODE	HTR	12.6	.15	8A-OW8	9F	2.6*	9.5*	12*	OSC SECT MIXER	250S 100 250 100	.05MEG .05MEG —3 — 1.5	 100 50	4.0 2.0 3.5 1.1	 2.7 1.3		GRID #2 RES .02 MEG .36MEG .6 MEG	 550C 360C			 —35 —20	12A8GT
12AH7GT	TWIN TR	HTR	12.6	.150	8BE-OGT8	9D	3.0L 2.2R	2.9L 3.2R	2.6L 3.0R	CL A 1 SECT	250 100	—9 —3.6		12 3.7		16 16	6600 10300	2400 1550			—30.0 —8.5	12AH7GT
12B8GT	TRIODE PENTODE	HTR	12.6	.3	8T-OGT8	9L	2.3 0.15	5.0 5.2	6.3 9.6	AMP TRIODE CLASS A AMP PENT CLASS A	100 90 100 90	—1 0 —3 —3	 100 90	0.6 2.8 8 7	 2 2	110 90 360 360	73000 37000 .17MEG .20MEG	1500 2400 2100 1800			—2.5 —2.5 —42.5	12B8GT
12C8	DUO-DI PENTODE	HTR	12.6	.15	8E-OW7	9F	.005	6	8	AMPLIFIER CLASS A	250 100	—3 —3	125 100	10 5.8	2.3 1.7		.6 MEG .3 MEG	1325 950			—21 —17	12C8
12E5GT	TRIODE	HTR	12.6	0.15	6Q-OGT6	9E	2.8	3.8	2.6	AMP CL A	250 100	—13.5 —5		5.0 2.5		13.8 13.8	9500 12000	1450 1150				12E5GT
12F5GT	TRIODE	HTR	12.6	.15	5M-OW5	9J	2.0*	6*	12*	AMPLIFIER CLASS A	250 100	—2 —1		0.9 0.4		100 100	68000 85000	1500 1150				12F5GT
12H6	DUO DI	HTR	12.6	0.15	7Q-OW7	8C	3.0	3.4	0.10	DETECTOR	150 MAX			8 MAX EACH DIODE								12H6
12J5GT	TRIODE	HTR	12.6	.15	6Q-OW6	9H	3.8*	4.2*	5.0*	AMPLIFIER CLASS A	250 90	—8 0		9.0 10.0		20 20	7700 6700	2600 3000				12J5GT
12J7GT	PENTODE	HTR	12.6	.15	7R-OW7	9F	.005*	4.6*	12*	AMP CL A PENT CONN TRI CONN	250 100 250	—3 —3 —8	100 100	2.0 2.0 6.5	0.5 0.5	 20	1.5MEG 1.0MEG 10500	1225 1185 1900			—7 —7	12J7GT
12K7GT	PENTODE	HTR	12.6	.15	7R-OW7	9F				AMPLIFIER CLASS A	250 250 100	—3 —3 —1	125 100 100	10.5 7.0 9.5	2.6 1.7 2.7		.6 MEG .8 MEG .15MEG	1650 1450 1650			—52.5 —42.5 —38.5	12K7GT
12K8GT	TRIODE HEXODE	HTR	12.6	.15	8K-OW8	9GA	.08*	4.6*	4.8*	OSC TRIODE MIXER HEX	100 250 100	.05MEG —3 —3	 100 100	3.8 2.5 2.3	 6.0 6.2		 .6 MEG .4 MEG	3000 350C 325C	(TRIODE GRID 0v)		 —30 —30	12K8GT
12L8GT	TWIN PENTODE	HTR	12.6	0.15	8BU-OGT8	9H	0.7	5.0	6.0	POWER AMP CLASS A	180	—9	180	13	2.4		0.16MEG	2150	1.0	10000		12L8GT
12Q7GT	DUO-DI TRIODE	HTR	12.6	.15	7V-OW7	9F	1.6*	2.2*	5*	AMPLIFIER CLASS A	250 100	—3 —1.0		1.0 0.8		70 70	58000 58000	1200 1200				12Q7GT
12SA7 12SA7GT/G	HEPTODE	HTR	12.6	.15	8R-OW8 8AD-OW8	8E 9E	.13 .20	9.5 11.0*	12 12.0*	OSC SECT MIXER	OSC GRID RES — .02 MEG 100	—2	100	3.5	8.5	OSC GRID CUR — .5ma	1.0MEG	450C			—35	12SA7 12SA7GT/G
12SC7	TWIN TRI	HTR	12.6	.15	8S-OW8	8E				AMP CL A 1 SEC	250	—2		2		70	53000	1325				12SC7
12SF5 12SF5GT	TRIODE	HTR	12.6	.15	6AB-OW6 6AB-OGT6	8E 9H	2.6 2.6*	4.2 4.2*	3.8 3.8*	AMPLIFIER CLASS A	250 100	—2 —1		0.9 0.4		100 100	68000 85000	1500 1150				12SF5 12SF5GT

TYPE	DESIGN	CATHODE			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		TYPE	HTR OR FIL. VOLTS	AMPS			G-P mmfds	IN mmfds	OUT mmfds													
12SF7	DIODE PENTODE	HTR	12.6	0.15	7AZ-OW8	8E	0.004	5.5	6.5	AMP CL A	250 100	—1 —1	125 100	12.4 12	3.3 3.4		0.7MEG 0.2MEG	2050 1975			—35 —35	12SF7
12SG7	PENTODE	HTR	12.6	0.15	8BK-OW8	8E	0.003	8.5	7.0	AMP CL A	250 100	—1 —1	125 100	11.8 8.2	4.4 3.2		0.9MEG 0.25MEG	4700 4100			—14 —11.5	12SG7
12SH7	PENTODE	HTR	12.6	0.15	8BK-OW8	8E	0.003	8.5	7.0	AMP CL A	250 100	—1 —1	100 100	10.8 5.3	4.1 2.1		0.9MEG 0.35MEG	4900 4000			—5.5 —4	12SH7
12SJ7 12SJ7GT	PENTODE	HTR	12.6	.15	8N-OW8 8N-OW8	8E 9E	.005	6.0	7.0	AMPLIFIER CLASS A	250 100	—3 —3	100 100	3.0 2.9	0.8 0.9	2500 1100	1.5MEG 0.7MEG	1650 1575			—9 —9	12SJ7 12SJ7GT
12SK7 12SK7GT/G	PENTODE	HTR	12.6	.15	8N-OW8 8N-OW8	8E 9E	.003 .005	6.0 6.5	7.0 7.5	AMPLIFIER CLASS A	250 100	—3 —1	100 100	9.2 13.0	2.6 4.0	2000 2350	0.8MEG .12MEG	2000 2350			—35 —35	12SK7 12SK7GT/G
12SL7GT	TWIN TRI	HTR	12.6	0.15	8BD-OGT8	9H				CL A 1 SECT	250	—2		2.3		70	44000	1600				12SL7GT
12SN7GT	TWIN TRI	HTR	12.6	0.3	8BD-OGT8	9H	4L 4R	3.2L 3.8R	3.4L 2.6R	CL A 1 SECT	250 90	—8 0		9 10		20 20	7700 6700	2600 3000				12SN7GT
12SQ7 12SQ7GT/G	DUO-DI TRIODE	HTR	12.6	.15	8Q-OW8 8Q-OW8	8E 9E	1.8	4.2	3.4	AMPLIFIER CLASS A	250 100	—2 —1		0.9 0.4		100 100	91000 110000	1100 900				12SQ7 12SQ7GT/G
12SR7 12SR7GT	DUO-DI TRIODE	HTR	12.6	.15	8Q-OW8 8Q-OGT8	8E 9H	2.3*	3.5*	3.8*	AMP CL A	250	—9		9.5		16	8500	1900				12SR7 12SR7GT
12Z3	DIODE	HTR	12.6	.3	4G-SS4	12B				H W RECT	235 RMS MAX			55 DC MAX			TUBE DROP 17v AT 110ma DC					12Z3
14A4	TRIODE	HTR	12.6	0.15	5AC-L8	9A	4.0	3.4	3.0	AMP CL A	250 90	—8 0		9 10		20 20	7700 6700	2600 3000				14A4
14A5	PENTODE	HTR	12.6	0.15	6AA-L8	9B				POWER AMP CLASS A	250	—12.5	250	30	3.5		50000	3000	2.5	7500		14A5
14A7/12B7	PENTODE	HTR	12.6	.15	8V-L8	9A	.005*	5.5*	7.0*	AMP CL A	250 100	—3 —1	100 100	9.2 13.0	2.6 4.0	1600 1600	.8 MEG .12MEG	2000 2350			—35 —35	14A7/12B7
14AF7	TWIN TRI	HTR	12.6	0.150	8AC-L8	9A	2.3L 2.3R	2.2L 2.2R	1.6L 1.6R	CL A 1 SECT	250 100	—10 0		9.0 10.8		16 17	7600 6500	2100 2600				14AF7
14B6	DUO-DI TRIODE	HTR	12.6	0.15	8W-L8	9A				DETECTOR AMPLIFIER	250 100	—2 —1		0.9 0.4		100 100	91000 110000	1100 900				14B6
14B8	HEPTODE	HTR	12.6	0.15	8X-L8	9A	0.20	10	9.0	OSC SECT MIXER	250S 250	.05MEG —3	100	4.0 3.5	2.7		GRID #2 RES .02 MEG .36MEG	550C			—35	14B8
14C5	BEAM PWR AMP	HTR	12.6	0.225	6AA-L8	9B				PR AMP CL A CL AB 2 TUBE	315 285	—13 —19	225 285	34 70	2.2 4		77000 65000	3750 3600	5.5 14	8500 8000		14C5
14C7	PENTODE	HTR	12.6	0.15	8V-L8	9A	0.007	6.0	6.5	AMP CL A	250 100	—3 —1	100 100	2.2 5.7	0.7 1.8		1 MEG 0.325	1575 2275			—9 —9	14C7
14E6	DUO-DI TRIODE	HTR	12.6	0.15	8W-L8	9A				AMP CL A	250 100	—9 —3		9.5 3.9		16 16.5	8500 11000	1900 1500				14E6
14E7	DUO-DI PENTODE	HTR	12.6	0.15	8AE-L8	9A	0.005	4.6	5.3	DETECTOR AMPLIFIER	250 100	—3 —1	100 100	7.5 10	1.6 2.7		0.7MEG 0.15MEG	1300 1600			—42.5 —36	14E7
14F7	TWIN TRI	HTR	12.6	0.15	8AC-L8	9A				CL A 1 SECT	250 100	—2 —1		2.3 0.65		70 70	44000 62000	1600 1125				14F7
14H7	PENTODE	HTR	12.6	.15	8V-L8	9A	.007*	8.0*	7.0*	AMP CL A	250 100	—2.5 —1	150 100	9.5 8.2	3.5 3.3		.8 MEG .25MEG	3800 3800			—19 —12	14H7

TYPE	DESIGN	CATHODE HTR OR FIL TYPE	CATHODE HTR OR FIL VOLTS	CATHODE HTR OR FIL AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfds	CAPACITIES IN mmfds	CAPACITIES OUT mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
14J7	TRI HEX	HTR	12.6	0.15	8AR-L8	9A	0.01	5.5	7.5	OSC-TRIODE MIXER HEX	250S 250	.05MEG —3	100	5.4 1.3	2.9		TRIODE PLATE RESISTOR .02 MEG 1.5MEG	300C			—20	14J7
14N7	TWIN TRI	HTR	12.6	0.30	8AC-L8	9B	3.0R 3.0L	2.9R 3.4R	2.4R 2.0L	CL A 1 SECT	250 90	—8 0		9 10		20 20	7700 6700	2600 3000				14N7
14Q7	HEPTODE	HTR	12.6	0.15	8AL-L8	9A	.2	9.0	9.0	OSC SECT MIXER	OSC GRID RESIS — .02 MEG 250	—2	100	3.5	8.5	OSC GRID CUR — .5ma	1.0MEG	550C			—35	14Q7
14R7	DUO-DI PENTODE	HTR	12.6	0.150	8AE-L8	9A	0.004	3.6	5.3	AMP CL A	250 100	—1 —1	100 100	5.7 5.5	1.7 2.0		1.0 0.35	3200 3000			—20 —16	14R7
14S7	TRI HEX	HTR	12.6	0.15	8AR-L8	9A	0.02	5.0	8.0	OSC-TRIODE MIXER	250 250	—2	100	5.0 1.8	3.0		TRIODE PLATE RESIS .02 MEG 1.25MEG	525C			—21	14S7
14V7	PENTODE	HTR	12.6	0.225	8V-L8	9A	0.004	9.5	6.5	HI FREQ AMP	300	—2	150	9.6	3.9		.3 MEG	5800			—6	14V7
14W7	PENTODE	HTR	12.6	0.225	8BJ-L8	9A	0.0025	9.5	7.0	AMP CL A	300 300	—2 —2	150 300 THRU .04 MEG (OTHER VALUES SAME AS ABOVE)	10.0	3.9		.3 MEG	5800			—6 —14	14W7
14Y4	TWIN DI	HTR	12.6	0.3	5AB-L8	9B				F W RECT	325 RMS MAX COND IN 60 DC MAX 450 RMS MAX CHOKE IN 60 DC MAX						TUBE DROP 20v AT 60ma DC					14Y4
15	PENTODE	HTR	2.0	.22	5F-SS5	12H	.01*	2.4	7.8	AMPLIFIER CLASS A	135 67.5	—1.5 —1.5	67.5 67.5	1.85 1.85	0.3 .3	600 450	.8 MEG .63MEG	750 710				15
19	TWIN TR	FIL	2.0	.26	6C-SS6	12B				CLASS B TWO SECT	135 135	0 —6		10 NO SIG 0.1 NO SIG					2.1 1.6	10000 10000		19
20	TRIODE	FIL	3.3	.132	4D-SS4	9Q	4.1	2.0	2.3	PR AMP CL A	135	—22.5		6.5		3.3	6300	525	.11	6500		20
22	TETRODE	FIL	3.3	.132	4K-SM4	14E	.02*	3.3	12	AMP CL A	135	—1.5	67.5	3.7	1.3		.33MEG	500				22
24A 24S	TETRODE	HTR	2.5	1.75	5E-SM5 5E-SM6	14E	.007*	5.3	10.5	AMPLIFIER CLASS A	250 180	—3 —3	80 90	4 4	1.7 1.7	630 400	.6 MEG .4 MEG	1050 1000				24A 24S
25A6 25A6G 25A6GT	PENTODE	HTR	25	.3	7S-OW7 7S-OM7 7S-OW7	8H 14C 9H				AMPLIFIER CLASS A	160 135 95	—18 —20 —15	120 135 95	33 37 20	6.5 8 4		42000 35000 45000	2375 2450 2000	2.2 2.0 0.9	5000 4000 4500		25A6 25A6G 25A6GT
25A7GT/G	DIODE PENTODE	HTR	25	.3	8F-OGT8	14C 9H				H W RECT AMP CL A	117 RMS MAX 100	—15	100	75 DC MAX 20.5	4	90	TUBE DROP 23v AT 150ma DC 50000	1800	.77	4500		25A7GT/G
25AC5G 25AC5GT	TRIODE	HTR	25	.3	6Q-OS6 6Q-OGT6	12K 9H	6AE6G DRIVER			DIR C'P'D AMP	110 FROM DRIVER			45					2	2000		25AC5G 25AC5GT
25B5	DUO-TRI	HTR	25	0.3	6AS-SS6	14D	DRIVER TRIODE OUTPUT TRIODE			DIR C'P'D AMP 2 TUBES CL A	180 180	—20 +		5.8 46			15200	2300	3.8	4000		25B5
25B6G	PENTODE	HTR	25	.3	7S-OM7	14C				POWER AMP CLASS A	200 135 105	—23 —22 —16	135 135 105	62 61 48	1.8 2.5 2.0		18000 15000 15500	5000 5000 4800	7.1 4.3 2.4	2500 1700 1700		25B6G
25B8GT	TRIODE PENTODE	HTR	25	.15	8T-OGT8	9L				CL A TRIODE CL A PENTODE	100 100	—1 —3	100	0.6 7.8	2.0	113	.08MEG .19MEG	1500 2000			—2.5 —41	25B8GT
25C6G	BM PWR	HTR	25	.3	7AC-OM7	14C				POWER AMP CLASS A	200 135	—14 —13.5	135 135	61 58	2.2 3.5		18300 9300	7100 7000	6.0 3.6	2600 2000		25C6G
25D8GT	DIODE TRIODE PENTODE	HTR	25	0.15	8AU-OGT8	9HA	2.5 0.015	3.7 5.2	4.5 10	DETECTOR CL A TRIODE CL A PENTODE	100 100	—1 —3	100	0.5 8.5	2.7	100	1000 0.2MEG	1100 1900			—35	25D8GT

TYPE	DESIGN	CATHODE HTR OR FIL TYPE	VOLTS	AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfds	IN mmfds	OUT mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
25L6 25L6GT/G	BEAM PWR AMP	HTR	25	.3	7AC-OW7 7AC-OGT7	8H 9H				POWER AMP CLASS A	110 200	—7.5 —8.0	110 110	49 50	4 1.5		10000 35000	8200 8250	2.1 4.3	2000 3000		25L6 25L6GT/G
25N6G	DUO-TRIODE	HTR	25	0.3	7AU-OM7	14C	DRIVER TRIODE OUTPUT TRIODE			DIR C'P'D AMP	180 180	—20 +		5.8 46		35	15200	2300	3.8	4000		25N6G
25X6GT	TWIN DIODE	HTR	25	0.15	7Q-OGT7	9H				H W RECT V DOUBLER	250 RMS MAX 125 RMS MAX			60 DC MAX 60 DC MAX			TUBE DROP 25v AT 120ma DC					25X6GT
25Y4GT	DIODE	HTR	25	0.15	5AF-OGT7	9H				H W RECT	125 RMS MAX			75 DC MAX			TUBE DROP 18v AT 125ma DC					25Y4GT
25Y5	TWIN DIODE	HTR	25	.3	6E-SS6	12B				H W RECT V DOUBLER	250 RMS MAX 117 RMS MAX			85 DC MAX 85 DC MAX			(EXPORT TYPE)					25Y5
25Z4GT	DIODE	HTR	25	0.3	5AF-OGT7	9H				H W RECT	125 RMS MAX			125 DC MAX			TUBE DROP 12v AT 125ma DC					25Z4GT
25Z5 25Z6 25Z6GT/G	TWIN DIODE	HTR	25	.3	6E-SS6 7Q-OW7 7Q-OGT7	12B 8H 9H				H W RECT V DOUBLER	235 RMS MAX 117 RMS MAX			75 DC MAX 75 DC MAX			TUBE DROP 22v AT 150 ma DC					25Z5 25Z6 25Z6GT/G
26	TRIODE	FIL	1.5	1.05	4D-SM4	14D	8.1	3.5	2.2	AMP CL A	180	—14.5		6.2		8.3	7300	1140				26
27 27S	TRIODE	HTR	2.5	1.75	5A-SS5 5A-SS5	12B	3.3	3.5	3.0	AMPLIFIER CLASS A	250 135	—21 —9		5.2 4.5		9 9	9250 9000	975 1000				27 27S
28D7	TW PENT	HTR	28	0.40	8BS-L8	9B				PR AMP CL A	28	—3.5	28	12.5	1.0		3000	3000	.1	4000		28D7
30	TRIODE	FIL	2.0	.06	4D-SS4	12B	6.0	3.7	2.1	AMP CL A BIAS DET	180 180	—13.5 —18		3.1 0.2	WITH NO SIGNAL	9.3	10300	900	(SEE 1H4G ALSO)			30
31	TRIODE	FIL	2.0	.13	4D-SS4	12B	5.7	3.5	2.7	AMPLIFIER CLASS A	180 135	—30 —22.5		12.3 8		3.8 3.8	3600 4100	1050 925	.375 .185	5700 7000		31
32	TETRODE	FIL	2.0	.06	4K-SM4	14E	.015*	5.3	10.5	AMPLIFIER CLASS A	180 135	—3 —3	67.5 67.5	1.7 1.7	0.4 0.4	780 610	1.2MEG .95MEG	650 640				32
32L7GT	DIODE BM PWR	HTR	32.5	.3	8Z-OGT8	9H				H W RECT POWER AMP CLASS A	125 RMS MAX 110 90	—7.5 —7	110 90	60 DC MAX 40 27	3 2		15000 17000	6000 4800	1.5 1.0	2500 2600		32L7GT
33	PENTODE	FIL	2.0	.26	5K-SM5	14D				POWER AMP CLASS A	180 135	—18 —13.5	180 135	22 14.5	5 3	90 70	55000 50000	1700 1450	1.4 0.7	6000 7000		33
34	PENTODE	FIL	2.0	.06	4M-SM4	14E	.015*	6.0	11.5	AMPLIFIER CLASS A	180 67.5	—3 —3	67.5 67.5	2.8 2.7	1.0 1.1	620 224	1 MEG 0.4MEG	620 560			—22.5 —22.5	34
35/51 35S/51S	TETRODE	HTR	2.5	1.75	5E-SM5 5E-SM5	14E	.007*	5.3	10.5	AMPLIFIER CLASS A	250 180	—3 —3	90 90	6.5 6.3	2.5 2.5	420 305	0.4MEG 0.3MEG	1050 1020			—40.0 —40.0	35/51 35S/51S
35A5	BM PWR	HTR	32	.15	6AA-L8	9B				POWER AMP CLASS A	110 200	—7.5 —8.0	110 110	40 41	3.0 2.0		14000 40000	5800 5900	1.5 3.3	2500 4500		35A5
35L6GT/G	BM PWR	HTR	35	.15	7AC-OGT7	9H				POWER AMP CLASS A	110 200	—7.5 —8.0	110 110	40 41	3.0 2.0		13800 40000	5800 5900	1.5 3.3	2500 4500		35L6GT/G
35Y4	DIODE	HTR	35	0.15	5AL-L8	9B				H W RECT LAMP TAP	235 RMS MAX			100 DC MAX or 60 DC MAX WITH 6.3v — 150ma PANEL LAMP TUBE DROP 18v AT 200ma DC								35Y4
35Z3	DIODE	HTR	32	.15	4Z-L8	9B				H W RECT	235 RMS MAX			100 DC MAX			TUBE DROP 20v AT 200ma DC					35Z3

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TYPE	DESIGN	CATHODE TYPE	CATHODE HTR OR FIL VOLTS	CATHODE HTR OR FIL AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfds	CAPACITIES IN mmfds	CAPACITIES OUT mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
35Z4GT	DIODE	HTR	35	.15	5AA-OGT6	9H				H W RECT	235 RMS MAX			100 DC MAX			TUBE DROP 18v AT 200ma DC					35Z4GT
35Z5GT/G	DIODE	HTR TAP	35 7.5	.15 .15	6AD-OGT6	9H				H W RECT LAMP TAP	235 RMS MAX			100 DC MAX OR 60 DC MAX WITH 6.3v — 150ma PANEL LAMP			TUBE DROP 18v AT 200ma DC					35Z5GT/G
35Z6G	TWIN DIODE	HTR	35	.3	7Q-OM7	14C				H W RECT V DOUBLER	235 RMS MAX 117 RMS MAX			110 DC MAX 110 DC MAX			TUBE DROP 20v AT 220ma DC					35Z6G
36	TETRODE	HTR	6.3	.3	5E-SS5	12H	.007*	3.7	9.2	AMP CL A BIAS DET	250 250	—3 —9	90 90	3.2 0.1	1.7 WITH NO SIGNAL	595	.55MEG	1080				36
37	TRIODE	HTR	6.3	.3	5A-SS5	12B	2.0	3.5	2.2	AMP CL A BIAS DET	250 250	—18 —28		7.5 .2		9.2 WITH NO SIGNAL	8400	1100				37
38	PENTODE	HTR	6.3	.3	5F-SS5	12H	.3	3.5	7.5	POWER AMP CLASS A	250 135	—25 —13.5	250 135	22 9	3.8 1.5	120 120	.1 MEG .13MEG	1200 925	2.5 0.55	10000 13500		38
39/44	PENTODE	HTR	6.3	.3	5F-SS5	12H	.007*	3.5	10	AMPLIFIER CLASS A	250 90	—3 —3	90 90	5.8 5.6	1.4 1.6	1050 360	1.0MEG .38MEG	1050 950			—42.5 —42.5	39/44
40	TRIODE	FIL	5.0	.25	4D-SM4	14D	8.8	3.4	1.5	AMP CL A	180	—3		0.2		30	15MEG	200 PL RESISTOR .25MEG				40
41	PENTODE	HTR	6.3	.4	6B-SS6	12B				POWER AMP CLASS A	315 250	—21 —18	250 250	25.5 32	4.0 5.5		75000 68000	2100 2300	4.5 3.4	9000 7600		41
42	PENTODE	HTR	6.3	.7	6B-SM6	14D				PR AMP CL A CL AB 2 TUBE PUSH-PULL	285 250 375 315	—20 —16.5 —26 —24	285 250 250 285	38 34 34 62	7 6.5 5 12	(SEE TYPE 2A5 ALSO)	78000 80000	2550 2500	4.8 3.2 18.5 11	7000 7000 10000 10000		42
43	PENTODE	HTR	25	.3	8B-SM8	14D				AMPLIFIER CLASS A	160 135 95	—18 —20 —15	120 135 95	33 37 20	6.5 8 4		42000 35000 45000	2375 2450 2000	2.2 2.0 0.9	5000 4000 4500		43
45	TRIODE	FIL	2.5	1.5	4D-SM4	14D	7	4	3	POWER AMP CLASS A CL AB 2 TUBE	275 180 275	—56 —31.5 —68		36 31 28		3.5 3.5	1700 1650	2050 2125	2 .825 18	4600 2700 3200		45
								PUSH-PULL														
45Z3	DIODE	HTR	45	0.075	5AM-MB7	5B				H W RECT	117 RMS MAX			65 DC MAX			TUBE DROP 23v AT 130ma DC					45Z3
45Z5GT	DIODE	HTR	45	.15	6AD-OGT6	9H				H W RECT LAMP TAP	235 RMS MAX			100 DC MAX OR 60 DC MAX WITH 6.3v — 150ma PANEL LAMP			TUBE DROP 16v AT 200ma DC					45Z5GT
46	DUAL GRID TRIODE	FIL	2.5	1.75	5C-SM5	16B	G2 TIED TO P G1 TIED TO G2			PR AMP CL A PR AMP CL B 2 TUBES	250 400 300	—33 0 0		22 12 NO SIGNAL [illegible] NO SIGNAL		5.[illegible]	2380	2350	1.25 20 18	6400 5800 5200		46
47	PENTODE	FIL	2.5	1.75	5B-SM5	16B				PR AMP CL A	250	—18.5	250	31	6	150	60000	2500	2.7	7000		47
48	PENTODE	HTR	30	.4	6B-SM6	16B				PR AMP CL A	125	—20	100	58	9.5			3900	2.5	1500		48
49	DUAL GRID TRIODE	FIL	2.0	.12	5C-SM5	14D	G2 TIED TO P G1 TIED TO G2			PR AMP CL A PR AMP CL B 2 TUBES	135 180 135	—20 0 0		6 4 NO SIGNAL 2.6 NO SIGNAL		4.7	4175	1125	.17 3.5 2.3	11000 12000 8000		49
50	TRIODE	FIL	7.5	1.25	4D-SM4B	19A				POWER AMP CLASS A	450 350	—84 —63		55 45		3.8 3.8	1800 1900	2100 2000	4.6 2.4	4350 4100		50
50A5	PENTODE	HTR	50	0.15	6AA-L8	9B				PR AMP CL A	200	—8	110	50	1.5		35000	8250	4.7	3000		50A5
50C6G	BM PWR	HTR	50	.15	7AC-OM7	14C				POWER AMP CLASS A	200 135	—14 —13.5	135 135	61 58	2.2 3.5		18300 9300	7100 7000	6.0 3.6	2600 2000		50C6G
50L6GT	BM PWR	HTR	50	.15	7AC-OGT7	9H				POWER AMP CLASS A	110 200	—7.5 —8.0	110 110	49 50	4 1.5		10000 35000	8200 8250	2.1 4.3	2000 3000		50L6GT

TYPE	DESIGN	CATHODE HTR OR FIL TYPE	CATHODE HTR OR FIL VOLTS	CATHODE HTR OR FIL AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfds	CAPACITIES IN mmfds	CAPACITIES OUT mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
50Y6GT/G	TWIN DIODE	HTR	50	.15	7Q-OM7	9H				H W RECT V DOUBLER	235 RMS MAX 117 RMS MAX			75 DC MAX 75 DC MAX			TUBE DROP 22v AT 150ma DC					50Y6GT/G
50Z7G	TWIN DIODE	HTR	50	.15	8AN-OS7	12E				H W RECT V DOUBLER LAMP TAP	117 RMS MAX 117 RMS MAX 2.5v — 150ma PANEL LAMP			65 DC MAX 65 DC MAX			TUBE DROP 21v AT 130ma DC					50Z7G
52	2 GRID TRIODE	FIL	6.3	.3	5C-SM5	14D	G2 TIED TO P G1 TIED TO G2			PR AMP CL A CL B 2 TUBE	110 180	0 0		43 3	NO SIGNAL	5.2	1750	3000	1.5 5	2000 10000		52
53	TWIN TRIODE	HTR	2.5	2.0	7B-SM7	14D				POWER AMP CL B 2 SECT	300	0		35	MAX SIG PL CUR—70ma (SEE TYPE 6A8 ALSO)				10	8000		53
55 55S	DUO-DI TRIODE	HTR	2.5	1.0	6G-SS6 6G-SS6	12H	1.7	2.0	3.5	AMPLIFIER CLASS A	250 135	—20 —10.5		8 3.7		8.3 8.3	7500 11000	1100 750	.3 .075	20000 25000		55 55S
56 56S 56AS	TRIODE	HTR	2.5 2.5 6.3	1.0 1.0 .3	5A-SS5 5A-SS5 5A-SS5	12B	3.2	3.2	2.2	AMPLIFIER CLASS A BIAS DET	250 100 250	—13.5 —5 —20		5 2.5 0.2	WITH NO SIGNAL	13.8 13.8	9500 12000	1450 1150				56 56S 56AS
57 57S 57AS	PENTODE	HTR	2.5 2.5 6.3	1.0 1.0 .4	6F-SS6 6F-SS6 6F-SS6	12J	.007°	5.0	6.5	AMPLIFIER CLASS A	250 100	—3 —3	100 100	2 2	0.5 0.5	1500 1185	1.5MEG 1.0MEG	1225 1185			—7 —7	57 57S 57AS
58 58S 58AS	PENTODE	HTR	2.5 2.5 6.3	1.0 1.0 .4	6F-SS6 6F-SS6 6F-SS6	12J	.007°	5.0	6.5	AMPLIFIER CLASS A	250 100	—3 —3	100 100	8.2 8	2 2.2	1280 375	.8 MEG .25MEG	1600 1500			—50 —50	58 58S 58AS
59	PENTODE	HTR	2.5	2.0	7A-SM7	16B	PENT CONN G_2G_4 TO PL 2 TUBES G_1 TO P			PR AMP CL A TRI CONN PR AMP CL B G_1 TO G_3	250 250 400 300	—18 —28 0 0	250	35 28 28 NO SIGNAL 20 NO SIGNAL	9	100 8	40000 2300	2500 2600	3 1.25 20 15	6000 5000 6000 4600		59
70A7GT	DI BEAM PR AMP	HTR	70	.15	8AB-OGT8	9H				H W RECT PR AMP CL A	125 RMS MAX 110	—7.5	110	60 DC MAX 40	3	80	TUBE DROP 14v AT 120ma DC 5800		1.5	2500		70A7GT
70L7GT	DIODE BM PWR	HTR	70	.15	8AA-OGT8	9H				H W RECT PR AMP CL A	125 RMS MAX 110	—7.5	110	70 DC MAX 40	3		TUBE DROP 20v AT 140ma DC 15000	7500	1.8	2000		70L7GT
71A	TRIODE	FIL	5	.25	4D-SM4B	14D				POWER AMP CLASS A	180 90	—40.5 —16.5		20 10		3 3	1750 2170	1700 1400	.79 .125	4800 3000		71A
75 75S	DUO-DI TRIODE	HTR	6.3	.3	6G-SS6 6G-SS6	12H	1.7	2.0	3.5	AMPLIFIER CLASS A	250	—2		0.9		100	91000	1100				75 75S
76	TRIODE	HTR	6.3	.3	5A-SS5	12B				AMPLIFIER CLASS A BIAS DET	250 100 250	—13.5 —5 —20		5 2.5 0.2	WITH NO SIGNAL	13.8 13.8	9500 12000	1450 1150				76
77	PENTODE	HTR	6.3	.3	6F-SS6	12H	.007°	4.7	11	AMPLIFIER CLASS A	250 100	—3 —1.5	100 60	2.3 1.7	0.5 0.4		1.5MEG 0.6MEG	1250 1100			—7.5 —5.5	77
78	PENTODE	HTR	6.3	.3	6F-SS6	12H	.007°	4.5	11	AMPLIFIER CLASS A	250 250 100	—3 —3 —1	125 100 100	10.5 7.0 9.5	2.8 1.7 2.7		.6 MEG .8 MEG .15MEG	1850 1450 1850			—52.5 —42.5 —38.5	78
79	TWIN TR	HTR	6.3	.6	6H-SS6	12H				CL B AMP 2 SECTIONS	250 180	0 0		10.6 7.6	NO SIG NO SIG				8 5.5	14000 7000		79
80	TWIN DI	FIL	5.0	2.0	4C-SM4	14D				FULL WAVE RECTIFIER	350 RMS MAX COND IN 125 DC MAX 500 RMS MAX CHOKE IN 125 DC MAX						TUBE DROP 60v AT 125ma DC					80
81	DIODE	FIL	7.5	1.25	4B-SM4	16B				H W RECT	700 RMS MAX			85 DC MAX			TUBE DROP 91v AT 170ma DC					81

TYPE	DESIGN	CATHODE			BASING DATA	MAX SIZE VIEW	CAPACITIES			USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
		TYPE	HTR OR FIL VOLTS	HTR OR FIL AMPS			G-P mmfds	IN mmfds	OUT mmfds													
82	TWIN DI	FIL	2.5	3.0	4C-SM4	14D	(MERCURY VAPOR)			FULL WAVE RECTIFIER	450 RMS MAX COND IN 115 DC MAX 550 RMS MAX CHOKE IN 115 DC MAX						TUBE DROP 15v					82
83	TWIN DI	FIL	5.0	3.0	4C-SM4	16B	(MERCURY VAPOR)			FULL WAVE RECTIFIER	450 RMS MAX COND IN 225 DC MAX 550 RMS MAX CHOKE IN 225 DC MAX						TUBE DROP 15v					83
83V	TWIN DI	HTR	5.0	2.0	4AD-SM4	14D				FULL WAVE RECTIFIER	375 RMS MAX COND IN 175 DC MAX 500 RMS MAX CHOKE IN 175 DC MAX						TUBE DROP 23v AT 175ma DC					83V
84/6Z4	TWIN DI	HTR	6.3	.5	5D-SS5	12B				FULL WAVE RECTIFIER	325 RMS MAX COND IN 60 DC MAX 450 RMS MAX CHOKE IN 60 DC MAX						TUBE DROP 20v AT 60ma DC					84/6Z4
85	DUO-DI TRIODE	HTR	6.3	.3	6G-SS6	12H	1.7	2.0	3.5	AMP CL A	250 180	—20 —13.5		8 6		8.3 9.3	7500 8500	1100 875	.35 .16	20000 20000		85
85AS	DUO-DI TRIODE	HTR	6.3	0.3	6G-SS6					AMP CL A	250	—9		5.5		20		1250				85AS
89	PENTODE	HTR	6.3	.4	6F-SS6	12H	G_3 TIED TO K G_3 TIED TO G_2			PENT PR AMP CLASS A CL B 2 TUBE	250 135 180	—25 —13.5 0	250 135	32 14 6 NO SIGNAL	5.5 2.2	125 125	70000 92500 G_3 TIED TO P	1800 1350	3.4 0.75 3.5	6750 9200 9400		89
V99 X99	TRIODE	FIL	3.3	.063	4E-SV4 4D-SS4	8A 9Q	3.3	2.5	2.5	AMP CL A BIAS DET	90 90	—4.5 —10.5		2.5 0.2 WITH NO SIGNAL		6.6	15500	425				V99 X99
117L/M7GT	DI BEAM PR AMP	HTR	117	.09	8AO-OGT8	9HA				H W RECT PR AMP CL A	117 RMS MAX 105	—5.2	105	75 DC MAX 43	4		TUBE DROP 16v AT 160ma DC 17000	5300	0.85	4000		117L/M7GT
117N7GT	DI BEAM PR AMP	HTR	117	.09	8AV-OGT8	9HA				H W RECT PR AMP CL A	117 RMS MAX 100	—6	100	75 DC MAX 51	6.0		TUBE DROP 16v AT 150ma DC 16000	7000	1.2	3000		117N7GT
117P7GT	DI BEAM PWR AMP	HTR	117	0.09	8AV-OGT8	9HA				H W RECT PR AMP CL A	117 RMS MAX 105	—5.2	105	75 DC MAX 43	4		TUBE DROP 16v AT 50ma DC 17000	5300	0.85	4000		117P7GT
117Z4GT	DIODE	HTR	117	0.04	5AA-OGT6	9H				H W RECT	117 RMS MAX			90 DC MAX			TUBE DROP 22.5v AT 180ma DC					117Z4GT
117Z6GT	TWIN DIODE	HTR	117	.075	7Q-OGT7	9H				RECTIFIER V DOUBLER	235 RMS MAX 117 RMS MAX			60 DC MAX 60 DC MAX			TUBE DROP 15.5v AT 125ma DC					117Z6GT
182B/482B	TRIODE	FIL	5.0	1.25	4D-SM4	14D				PR AMP CL A	250	—35		18		8		1500				182B/482B
183/483	TRIODE	FIL	5.0	1.25	4D-SM4	14D				PR AMP CL A	250	—58		20		3		1500				183/483
485	TRIODE	HTR	3.0	1.25	5A-SS5	12B				AMP CL A	180	—10		5.2		12.8		1300				485
950	PENTODE	FIL	2.0	.12	5K-SM5	14D				PR AMP CL A	135	—16.5	135	7.0	2.0	100	.1 MEG	1000	.45	13500		950
BA	TWIN DI	COLD			4J-SM4	19B	GAS FILLED			F W RECT	350 RMS MAX			350 DC MAX			TUBE DROP 80v					BA
BH	TWIN DI	COLD			4J-SM4	14A	GAS FILLED			F W RECT	350 RMS MAX			125 DC MAX			TUBE DROP 90v					BH
BR	DIODE	COLD			4H-SM4	12A	GAS FILLED			H W RECT	300 RMS MAX			50 DC MAX			TUBE DROP 60v					BR
CK1003/ 0Z4A		SEE 0Z4A/1003																				CK1003/ 0Z4A
VR75-30		SEE 0A3/VR75																				VR75-30
VR90-30		SEE 0B3/VR90																				VR90-30
VR105-30		SEE 0C3/VR105																				VR105-30
VR150-30		SEE 0D3/VR150																				VR150-30
XXD	TWIN TRIODE	HTR	12.6	.15	8AC-L8	9A	2.3	2.2	1.6	AMP CL A 1 SEC	250 100	—10 0		9 10.8		16 17	7600 6500	2100 2600				XXD
XXL	TRIODE	HTR	6.3	.3	5AC-L8	9A	2.0	3.4	2.6	AMP CL A	250 100	—8 0		9 10		20 25	8700 7000	2300 3600				XXL

SPECIAL PURPOSE TUBES

TYPE	DESIGN	CATHODE HTR OR FIL TYPE	VOLTS	AMPS	BASING DATA	MAX SIZE VIEW	CAPACITIES G-P mmfds	IN mmfds	OUT mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	AMP FACT	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	CUT OFF VOLTS	TYPE
717A	PENTODE	HTR	6.3	0.175	8BK-OGT8	9T	.025	4.8	3.2	AMP CL A	120	—2.0	120	7.5	2.5		.39MEG	4000				717A
954	PENTODE	HTR	6.3	0.15	954	4A	0.007	3.4	3.0	AMP CL A	250	—3	100	2.0	0.7		1.5MEG	1300			—7	954
955	TRIODE	HTR	6.3	0.15	955	4B	1.4	1.0	0.6	AMP OSC	250	—7		6.3		25	11400	2200				955
956	PENTODE	HTR	6.3	0.15	956	4A	0.007	3.4	3.0	AMP CL A	250	—3	100	6.7	2.7		0.7MEG	1800			—45	956
957	TRIODE	FIL	1.25	0.05	957	4B	1.2	0.3	0.7	AMP OSC	135	—5		2.0			24600	650				957
1005/ CK1005	TWIN DIODE	FIL	6.3	0.1	5AQ-OW8	8E				FULL WAVE RECTIFIER	▲160			70 DC MAX — 0ma MIN. — TUBE DROP 20v AT 70ma								1005/ CK1005
1006/ CK1006	TWIN DIODE	COLD FIL	1.75	2.00	4C-SM4	14D				FULL WAVE RECTIFIER	560 560			200 DC MAX — (70 DC MIN.) — TUBE DROP 30v AT 200ma 200 DC MAX — (0 DC MIN.) — TUBE DROP 25v AT 200ma								1006/ CK1006
CK1007	TWIN DIODE	COLD FIL	1.0	1.2	1007-OW6	8E				FULL WAVE RECTIFIER	285 285			110 DC MAX — (30 DC MIN.) — TUBE DROP 24v AT 110ma 110 DC MAX — (0 DC MIN.) — TUBE DROP 24v AT 110ma								CK1007
9001	PENTODE	HTR	6.3	0.15	7BD-MB7	5A	0.01	3.6	3.0	AMPLIFIER CLASS A	250 90	—3 —3	100 90	2.0 1.2	0.7 0.5		1.5MEG 1.0MEG	1400 1100			—8 —6	9001
9002	TRIODE	HTR	6.3	0.15	6BG-MB7	5A	1.4	1.2	1.1	AMP OSC	250 90	—7 —2.5		6.3 2.5		25 25	11400 14700	2200 1700				9002
9003	PENTODE	HTR	6.3	0.15	7BD-MB7	5A	0.01	3.4	3.0	AMP CL A	250	—3	100	6.7	2.7		0.7MEG	1800			—45	9003

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FLAT HEARING AID TUBES

TYPE	DESIGN	CATHODE HTR OR FIL TYPE	VOLTS	AMPS	BASING DATA	MAX SIZE VIEW	‡ CAPACITIES G-P mmfds	IN mmfds	OUT mmfds	USED AS	PLATE VOLTS	GRID VOLTS	SCR VOLTS	PLATE MA	SCR MA	VOLTAGE GAIN	PLATE RESIS OHMS	MUT COND mmho	OUT PUT WATTS	LOAD RESIS OHMS	TUBE WEIGHT OUNCES	TYPE
CK502AX	PENTODE	FIL	1.25	0.030	Term Conn. See Max. Size View	3C	.14	3.0	5.7	POWER OUTPUT	45	—1.5	45	.45	.11		.25MEG	500	.006	0.1MEG	.09	CK502AX
CK503AX	PENTODE	FIL	1.25	0.030	Term Conn. See Max. Size View	3C	.1	3.7	6.3	POWER OUTPUT	45	—2.5	45	0.5	.18		.4 MEG	475	.010	0.05MEG	.09	CK503AX
CK505AX	PENTODE	FIL	0.625	0.030	Term Conn. See Max. Size View	3B	.07	2.7	6.2	VOLTAGE AMPLIFIER	30	0	30	.20	.07	35	.5 MEG	180		1MEG	.07	CK505AX
CK506AX	PENTODE	FIL	1.25	0.050	Term Conn. See Max. Size View	3C	.09	3.5	6.2	POWER OUTPUT	45	—4.5	45	1.25	0.4			500	.025	.03MEG	.09	CK506AX
CK507AX	PENTODE	FIL	1.25	0.050	Term Conn. See Max. Size View	3C	.1	3.7	6.3	POWER OUTPUT	45	—2.5	45	.6	.21		.3 MEG	500	.012	0.05MEG	.09	CK507AX
CK509AX	TRIODE	FIL	0.625	0.030	Term Conn. See Max. Size View	3A	.8	1.7	3.5	VOLTAGE AMPLIFIER	45	0		.15		16	.15MEG	160		1MEG	.07	CK509AX

‡ Direct interelectrode capacity measurements made with a low resistance metallic coating applied directly to the bulb and extending to approximately $\frac{1}{4}$ inch from the lead end.

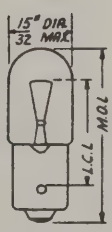
ERTM

RADIO PANEL LAMPS

TYPE NO.	VOLTS	AMPS	APPROX. CANDLE POWER	BULB	BASE	BEAD COLOR	LIGHT CENTER LENGTH	MAX. OVERALL LENGTH	TYPE NO.
40	6-8	0.15	0.5	T-3¼	Min. Screw	Brown	$\frac{13}{32}$"	1⅛"	40
40-A	6-8	0.15	0.5	T-3¼	Min. Bayonet	Brown	$\frac{13}{32}$"	1⅛"	40-A
41	2.5	0.5	0.5	T-3¼	Min. Screw	White	$\frac{13}{32}$"	1⅛"	41
42	3.2	0.5	0.75	T-3¼	Min. Screw	Green	$\frac{13}{32}$"	1⅛"	42
43	2.5	0.5	0.5	T-3¼	Min. Bayonet	White	$\frac{13}{32}$"	1⅛"	43
44	6-8	0.25	0.8	T-3¼	Min. Bayonet	Blue	$\frac{13}{32}$"	1⅛"	44
45	3.2	0.5	0.75	T-3¼	Min. Bayonet	Green	$\frac{13}{32}$"	1⅛"	45
46	6-8	0.25	0.8	T-3¼	Min. Screw	Blue	$\frac{13}{32}$"	1⅛"	46
47	SAME CHARACTERISTICS AS 40A, WITH WHICH IT IS INTERCHANGEABLE								47
48	2.0	0.06	0.03	T-3¼	Min. Screw	Pink	$\frac{13}{32}$"	1⅛"	48
49	2.0	0.06	0.03	T-3¼	Min. Bayonet	Pink	$\frac{13}{32}$"	1⅛"	49
49-A	2.1	0.12	0.07	T-3¼	Min. Bayonet	White	$\frac{13}{32}$"	1⅛"	49-A
50	6-8	0.2	1.0	G-3½	Min. Screw	White	$\frac{13}{16}$"	1$\frac{5}{16}$"	50
51	6-8	0.2	1.0	G-3½	Min. Bayonet	White	½"	1$\frac{1}{16}$"	51
55	6-8	0.4	1.5	G-4½	Min. Bayonet	White	⅝"	1$\frac{5}{16}$"	55
292	2.9	0.17	0.3	T-3¼	Min. Screw	White	$\frac{13}{32}$"	1⅛"	292
292-A	2.9	0.17	0.3	T-3¼	Min. Bayonet	White	$\frac{13}{32}$"	1⅛"	292-A

Note: The color of the bead inside the lamp bulb may be used to identify the more common types. This information is shown in the column headed "Bead Color."

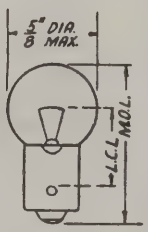
40
41
42
46
48
292



40A
43
44
45
49
49A
292A

50

51



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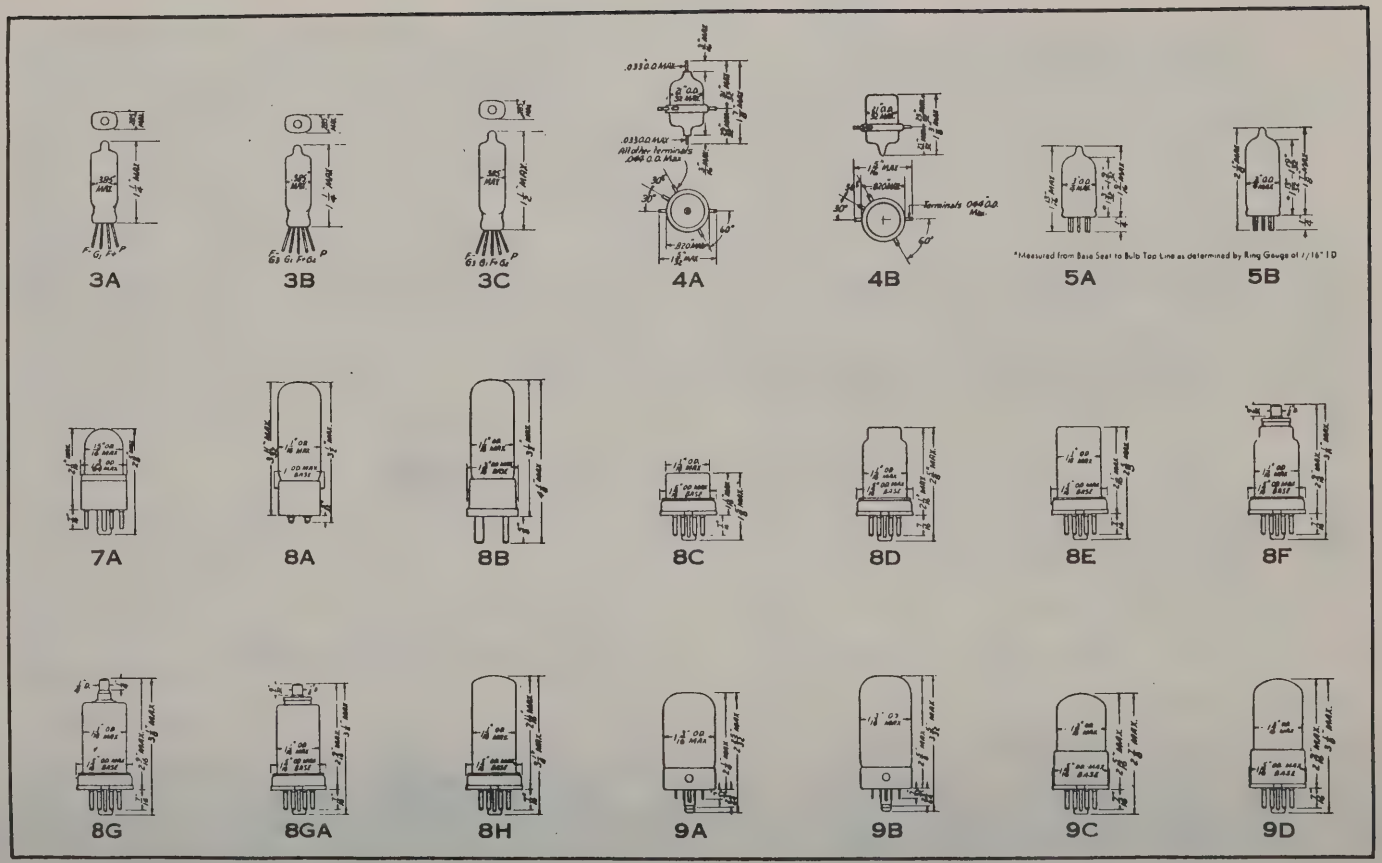

3A
3B
3C
4A
4B
5A
5B
*Measured from Base Seat to Bulb Top Line as determined by Ring Gauge of 1/16" I.D.
7A
8A
8B
8C
8D
8E
8F
8G
8GA
8H
9A
9B
9C
9D

ERTM

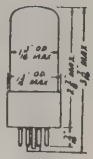
9E

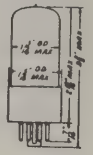
9F

9G

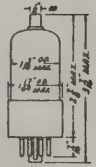
9GA

9H


9HA

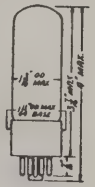

9HB

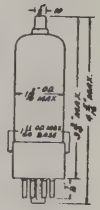
9J


9K

9L

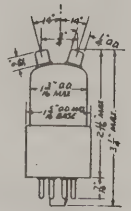
9M

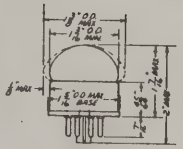

9N


9P

9Q

9R


9S


9T

10A

10B

10C

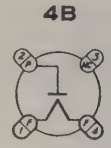
10D

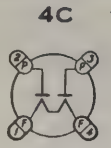
12A
12K
14E
12B
12L
16A
12E
14A
16B
12F
14B
16C
12H
14C
19A
12J
14D
19B

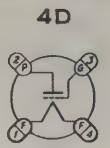
BASE CONNECTION DIAGRAMS (VIEWED FROM BOTTOM OF BASE)

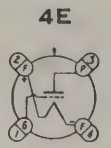
LIST OF SYMBOLS

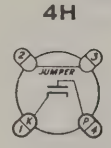
A	ANODE
A_S	STARTER ANODE
D	DIODE PLATE
D_B	DIODE PLATE—BOTTOM
D_L	DIODE PLATE—LEFT
D_R	DIODE PLATE—RIGHT
D_T	DIODE PLATE—TOP
DEF	DEFLECTOR PLATES
E_C	CONTROL ELECTRODE
F	FILAMENT
F_T	FILAMENT TAP
G	GRID
G_1	GRID NO. 1
G_2	GRID NO. 2
G_3	GRID NO. 3
G_4	GRID NO. 4
G_5	GRID NO. 5
G_6	GRID NO. 6
G_{1H}	HEPTODE GRID NO. 1
G_{2H}	HEPTODE GRID NO. 2
G_{3H}	HEPTODE GRID NO. 3
G_{4H}	HEPTODE GRID NO. 4
G_{5H}	HEPTODE GRID NO. 5
G_{1HX}	HEXODE GRID NO. 1
G_{2HX}	HEXODE GRID NO. 2
G_{3HX}	HEXODE GRID NO. 3
G_{4HX}	HEXODE GRID NO. 4
G_{1L}	GRID NO. 1—LEFT
G_{1P}	PENTODE GRID NO. 1
G_{2P}	PENTODE GRID NO. 2
G_{3P}	PENTODE GRID NO. 3
G_{1R}	GRID NO. 1—RIGHT
G_{1N}	GRID—INPUT SECT.
G_L	GRID—LEFT
G_R	GRID—RIGHT
G_T	TRIODE GRID
H	HEATER
H_T	HEATER TAP
IS	INTERNAL SHIELD
K	CATHODE
K_D	DIODE CATHODE
K_L	CATHODE—LEFT
K_O	CATHODE—OUTPUT SECT.
K_P	PENTODE CATHODE
K_R	CATHODE—RIGHT
K_T	TRIODE OR TETRODE CATH
NC	NO CONNECTION
P	PLATE
P_H	HEPTODE PLATE
P_{HX}	HEXODE PLATE
P_{IN}	PLATE—INPUT SECT.
P_L	PLATE—LEFT
P_O	PLATE—OUTPUT SECT.
P_P	PENTODE PLATE
P_R	PLATE—RIGHT
P_T	TRIODE OR TETRODE PLATE
SH	SHELL
T	TARGET
XS	EXTERNAL SHIELD

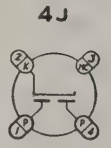


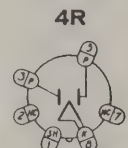


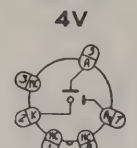


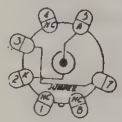


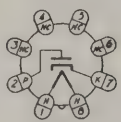


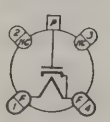


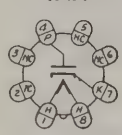


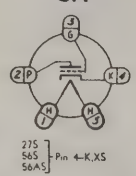


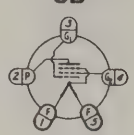


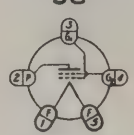








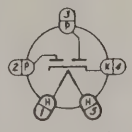




SH DESIGNATION FOR GT TYPES INDICATES METAL BASE SHELL.

SUBSCRIPTS R & L INDICATE RIGHT & LEFT ELEMENTS WHEN LOOKING DOWN ON TOP OF TUBE WITH LOCATING LUG OF KEY OR FILAMENT PINS AT FRONT.

5D

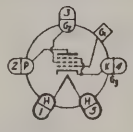


25, 45 Pin 4–K,XS

5E

24S, 35S, 51S } Pin 4–K,XS

5F



5K

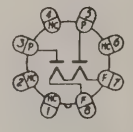
5L

5V4G Pin 1–NC

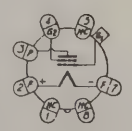
5M

6F5, 6F5GT, 12F5GT } Pin 1–SH

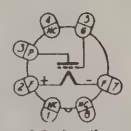
5Q



5R

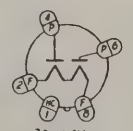


5S



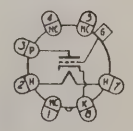
1E4G, 2A4G, 6B4G } Pin 6–NC

5T



5T4, 5W4, 5U4G } Pins 3,5,7–NC

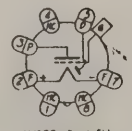
5U



5Y

1Y5GT Pin 1–SH

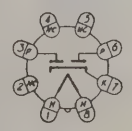
5Z



1H5GT Pin 1–SH

5AA

5AB



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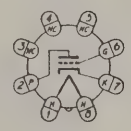
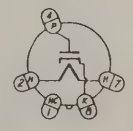


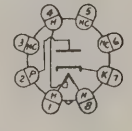
5AD

5AF

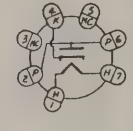


5AG

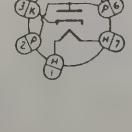
5AL



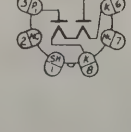
5AM



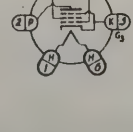
5AP



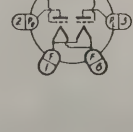
5AQ



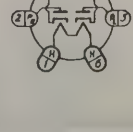
6B



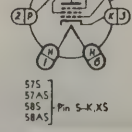
6C



6E

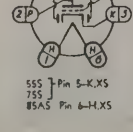


6F



57S, 57AS, 58S, 58AS } Pin 5–K,XS

6G



55S, 75S } Pin 5–K,XS

85AS Pin 6–H,XS

6H

6J

6K

6L

6M

6Q

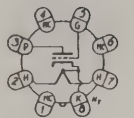
6C5
6J5
6J5GT
12E5GT
12J5GT } Pin 1-SH
6C5G Pin 1-IS

6R

6S

6X5 Pin 1-SH

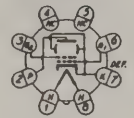
6T



6W

6X

6AA

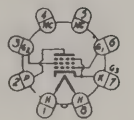


6AB

6SF5 Pin 1-SH

6AD

6AE



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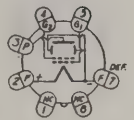


6AM

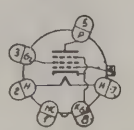
6AP

6AR

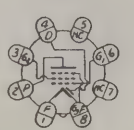
6AS

6AU

6AW

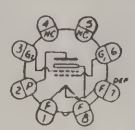


6AX



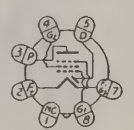
6BA

6BB



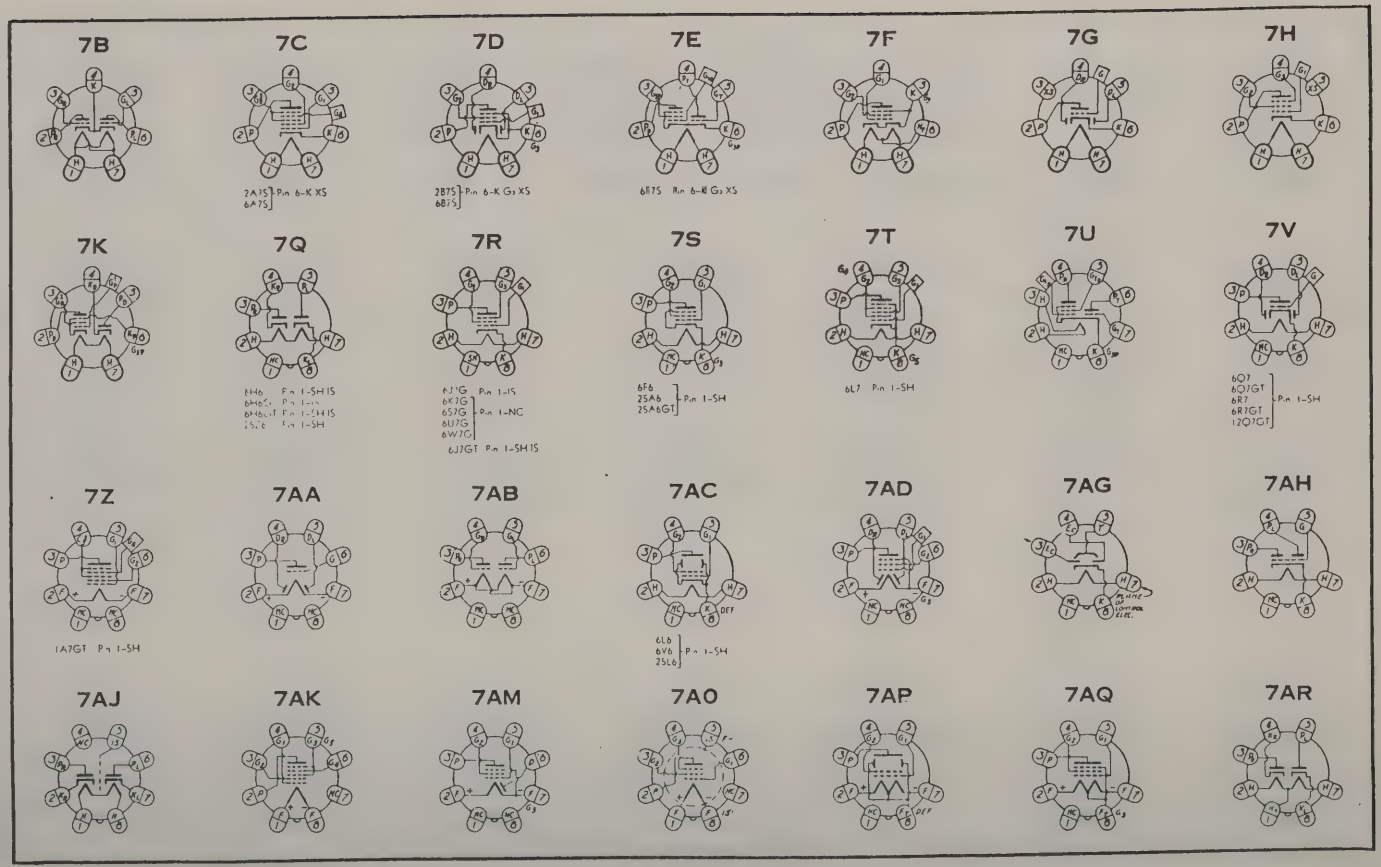
6BD

6BE

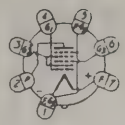


6BG

7A


7B
7C
2A7S
6A7S
Pin 6-K XS
7D
2B7S
6B7S
Pin 6-K G3 XS
7E
6E7S Pin 6-K G3 XS
7F
7G
7H
7K
7Q
6H6 Pin 1-SH IS
6H6GT Pin 1-IS
6H6GT Pin 1-SH IS
7S6E Pin 1-SH
7R
6J7G Pin 1-IS
6K7G
6S7G Pin 1-NC
6U7G
6W7G
6J7GT Pin 1-SH IS
7S
6F6
25A6
25A6GT
Pin 1-SH
7T
6L7 Pin 1-SH
7U
7V
6Q7
6Q7GT
6R7
6R7GT
12Q7GT
Pin 1-SH
7Z
1A7GT Pin 1-SH
7AA
7AB
7AC
6L6
6V6
25L6
Pin 1-SH
7AD
7AG
7AH
7AJ
7AK
7AM
7AO
7AP
7AQ
7AR

7AT



7AU

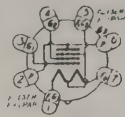
6N8MG Pin 1-SH

7AV

7AX

7AZ

7BA



7BB

7BC

7BD

7BE

7BF

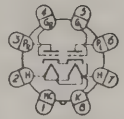
7BH

7BK

8A

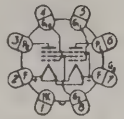
6A8
6ABGT
12ABGT
} Pin 1-SH

8B



6N7 Pin 1-SH

8C



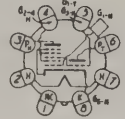
8E

6B8
12C8
} Pin 1-SH

8F

8G

8H



8K

6K8 Pin 1-SH DEF
6K8GT Pin 1-SH

8L

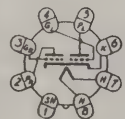
8N

8Q

6SQ7
12SQ7
6SR7
6ST7
} Pin 1-SH

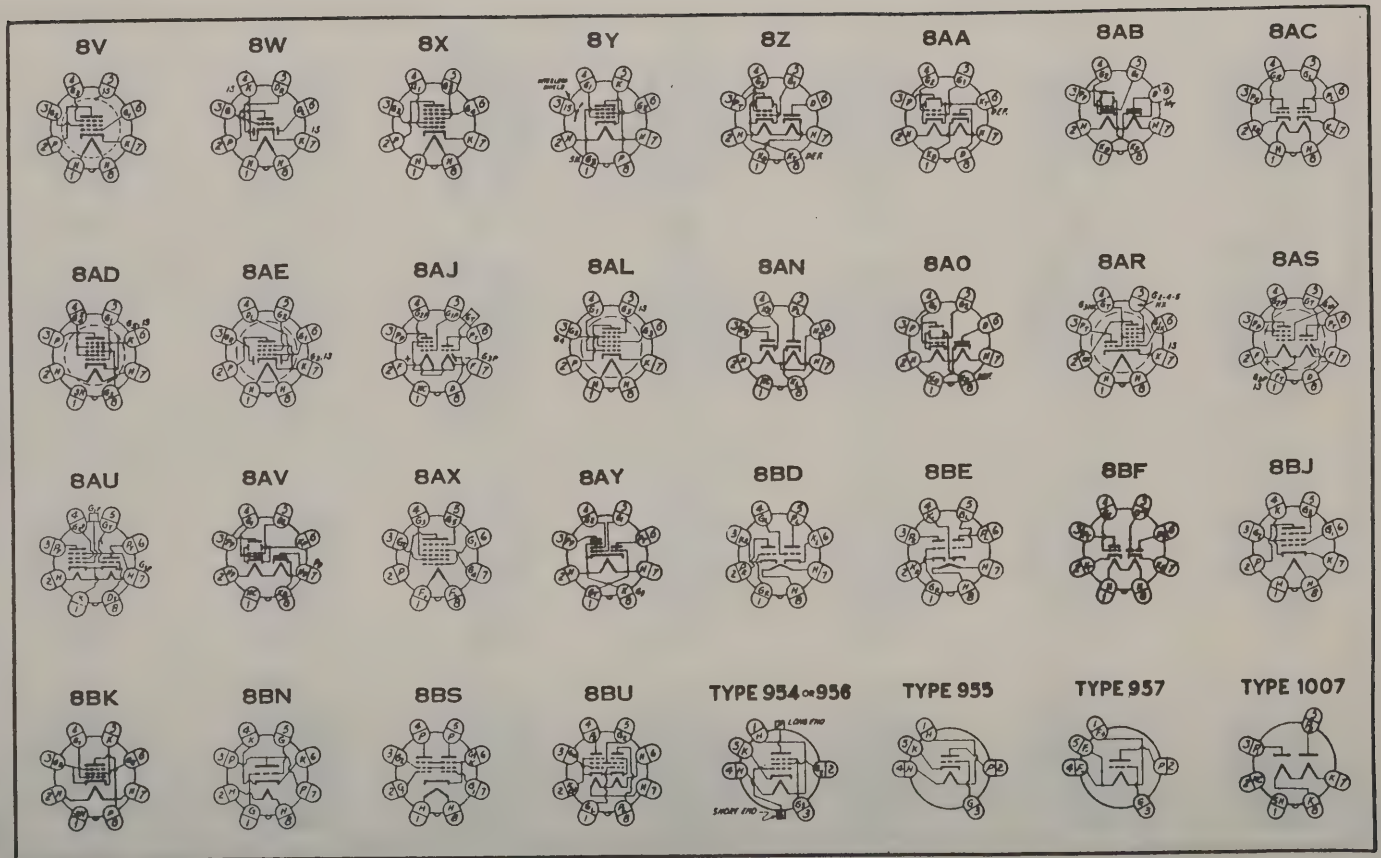
8R

8S



8T

8U


8V
8W
8X
8Y
8Z
8AA
8AB
8AC
8AD
8AE
8AJ
8AL
8AN
8AO
8AR
8AS
8AU
8AV
8AX
8AY
8BD
8BE
8BF
8BJ
8BK
8BN
8BS
8BU
TYPE 954 or 956
TYPE 955
TYPE 957
TYPE 1007

DEFINITION OF TUBE TERMS

AMPLIFICATION FACTOR OR "MU" (μ) -- The ratio of plate-voltage change to input-voltage change to produce the identical amount of plate-current change; all other voltages remaining constant.

ANODE -- An electrode to which a principal electron stream flows. (Often referred to as the "plate".)

CATHODE -- An electrode that is the emitter or primary source of an electron stream.

CLASS A AMPLIFIER -- An amplification system in which the tube functions at the optimum linear portion of its characteristic curve in relation to the amplitude of the signals it amplifies and the value of plate load impedance employed. An average plate current flows constantly during the entire 360° of the signal cycle.

Such type amplifier is frequently referred to as a Class A_1 amplifier; the suffix "1" denoting that the input signal voltage never exceeds the grid bias voltage; thus, grid current does not flow at any time during normal operation. This type of amplifying system is noted for its fidelity of reproduction.

CLASS AB AMPLIFIER -- A compromise between the Class A_1 and Class B system of amplification.

CLASS AB_1 AMPLIFIER -- Very similar to the Class A_1 system, except that a higher grid biasing voltage is employed. The plate and screen voltages are also generally higher. Grid excitation (signal) voltage is restricted so that it does not exceed the grid biasing voltage; therefore, grid current does not flow at the highest signal levels.

CLASS AB_2 AMPLIFIER -- Closely resembles the Class B mode of amplifier operation, except that conventional power amplifier type tubes are employed for both the driver and push-pull stage. The push-pull tubes are over-biased so that only a small percentage of plate current flows during the no-signal period. On the more powerful signals, the driver stage is permitted to drive the grids of the push-pull tubes positive, (alternately). As with Class B amplification, a step-down type of interstage transformer couples the driver stage to the push pull input circuit so that distortion is held down to a minimum during the period of grid current flow.

In comparison to Class B amplification, Class AB_2 provides superior tonal qualities at the lower levels of volume but does not have the power output of the former.

CLASS B AMPLIFIER -- A system of amplification wherein two tubes are connected in a push-pull arrangement; these tubes being so designed or so operated that a negligible or no plate current flows during the no-signal period. An extremely powerful power-amplifier driver precedes the push-pull stage so that the grids of the tubes in the push-pull stage are driven positive during the greater portion of the signal cycle. A step-down type of interstage transformer is employed to couple the output of the driver stage to the input of the push-pull stage. Because of the low impedance winding in the grid circuit of each push-pull tube, distortion is held to a minimum, even though grid current flows.

Tubes especially designed for Class B operation are generally used for this purpose. These tubes require no biasing voltage, being so designed that negligible plate-current flows at zero bias voltage. In a majority of these types, both push-pull tubes are contained within the same glass or metal bulb; each functioning independently of the other, however. By paralleling the grids and plates of each set of elements, the tube may then be used as the driver amplifying tube. Tubes of this type are listed as Class B tubes in the column headed, "Used As", in the Tube Characteristic Chart of this manual.

CLASS C AMPLIFIER -- Generally used in transmitting circuits only. The amplifying tube, in this case, is biased to an exceedingly high degree so that plate-current flow is blocked well beyond its cut-off point. Powerful input excitation voltages are impressed upon the grid of the amplifier tube so that the plate current flows in pulses of high amplitude, but of short duration. The advantage of such mode of amplification is that almost 90% of the input operating power is converted into r-f output power; an efficiency that can hardly be equalled by the other forms of amplification.

CATHODE-RAY OSCILLOGRAPH TUBE -- A tube in which the electron beam is deflected electrically or by the use of magnetic fields; the pattern of which may be visually viewed upon the face of the tube.

CONTROL-GRID -- An electrode in the path of the electronic stream of a tube having valvular properties so that it is capable of modifying the flow of plate current in any desired manner. In radio receiving type tubes, the signal is impressed upon this electrode so that it modifies the plate current flow in step with the signal wave-form or pattern.

CONVERSION TRANSCONDUCTANCE -- The ratio or proportion of intermediate-frequency energy obtained from the heterodyning or mixing of the superheterodyne oscillator signal with the r-f signal.

DIODE -- A two(2) element vacuum tube containing a cathode and anode (plate).

DRIVER TUBE -- The tube whose output excites the input of a following stage.

ELECTRODE -- A functioning element within the vacuum tube (Example: Cathode, plate, control-grid, filament, etc.).

ELECTRODE DISSIPATION -- The power dissipated in the form of heat by an electrode as a result of electron (or the combination of electron and ion) bombardment.

FILAMENT -- An electrode functioning as a cathode, usually in the form of a ribbon within the tube which heats up to the point of thermionic (electronic) emission when the filament current flows through it.

FILAMENT CURRENT -- The amperage drawn by the filament during operation.

FILAMENT VOLTAGE -- The voltage applied to the filament of a tube to heat it to the point of thermionic emission.

GAS CURRENT -- Electrical current composed of positive ions. Pro-

duced by the electronic flow within a tube bombarding the gas molecules in its path.

GAS TUBE -- A gas-filled tube in which the contained gas or vapor is a factor in affecting substantially the electrical characteristics of the tube.

GRID -- An electrode within the tube having one or more openings (spaces) for the passage of electrons or ions.

GRID EMISSION -- The electronic or ionic emission given off by the grid electrode.

HEATER -- A heating element, generally enclosed within--and electrically insulated from---the emitting cathode. Its only function is to provide the necessary heat to increase the temperature of the cathode to the point of thermionic emission.

HEPTODE -- A seven-electrode vacuum tube containing a cathode, control grid, plate and four additional electrodes ordinarily in the nature of grids.

HEXODE -- A six-electrode vacuum tube containing a cathode, control-grid, plate and three additional electrodes ordinarily in the nature of grids.

HIGH-VACUUM TUBE -- A vacuum tube that is so highly evacuated that its electrical characteristics are essentially unaffected by gaseous ionization.

INTER-ELECTRODE CAPACITANCE -- The capacity existing between two specified electrodes within the tube.

LEAKAGE CURRENT -- Undesirable flow of current between two points, or a flow of current in an undesirable channel or direction.

MULTI-ELECTRODE TUBE -- A vacuum tube comprised of three or more electrodes whose functions are associated with a single electronic stream.

MULTIPLE-UNIT TUBE -- A single envelope or bulb containing two or more independently functioning sets of electrodes.
Examples: duo-diode, duo-triode, diode-pentode, etc.

MUTUAL CONDUCTANCE (GRID-PLATE TRANSCONDUCTANCE) -- The ratio of a small change in plate current to the small change in control-grid voltage producing it; under the condition that all other voltages remain unchanged.

OCTODE -- An eight-electrode vacuum tube containing a cathode, plate, control-grid and five other electrodes generally in the nature of additional grids.

PEAK INVERSE VOLTAGE (MAXIMUM) -- The highest peak voltage that a rectifier tube can safely withstand in the direction opposite to that in which it was designed to pass current. (With single-phase input, this value is approximately 1.4 times the R.M.S. voltage. When the input current is of a poly-phase nature, this voltage value must be obtained vectorially).

PEAK PLATE CURRENT (MAXIMUM) -- The highest peak current that a rectifier tube can safely withstand in the desired direction.

PENTODE -- A five-electrode type vacuum tube containing a plate, cathode, control-grid and two additional electrodes generally in the nature of various type grids.

PHOTOTUBE -- A vacuum tube whose function is dependent upon irradiation from an external source.

PLATE -- Common term used to designate the principal anode in a vacuum tube.

PLATE RESISTANCE -- The ratio of a small plate voltage change to the resultant small plate current change produced thereby This ratio signifies the resistance of the path between the cathode and plate to the flow of a varying electronic stream.

PUSH-PULL OPERATION -- A system of amplification consisting of two tubes whose grids function 180° out of phase in respect to one another. In the output circuit, the expanding magnetic field of the "push" tube combines in force with the collapsing field of the "pull" tube; thus, transferring a greater amount of output energy into the secondary of the output transformer than would be realized if only one tube were used. All even harmonics are cancelled out in push-pull type amplifiers.

SECONDARY EMISSION -- Electronic emission due to the bombardment of electrons upon an electrode within the tube.

SUPPRESSOR GRID -- A grid electrode interposed between two electrodes (generally the screen-grid and plate) for the purpose of suppressing the passage of secondary-emission electrons from one to the other. The polarity of the suppressor grid is generally negative with respect to the plate and screen-grid.

TETRODE -- A four-electrode vacuum tube consisting of a plate, cathode, control-grid and one additional electrode generally in the nature of a grid.

THERMIONIC EMISSION -- The emission of electrons or ions that results from the heating of an object.

THERMIONIC TUBE -- A vacuum tube whose function is dependent upon the emission of electrons or ions resulting from the heating of one (or more) of its electrodes.

TRANSCONDUCTANCE -- Refer to Mutual Conductance.

TRIODE -- A vacuum tube consisting of three electrodes; generally a cathode, control-grid and plate.

VACUUM TUBE -- A device consisting of a metal or glass enclosure (bulb) containing two or more electrodes, and whose function is dependent upon the passage of electrical current through the evacuated or gaseous space between two or more of these electrodes.

* * * * * *

ERTM

INTERPRETATION OF TUBE RATINGS

POWER LINE VOLTAGE: In most cities, the power line voltage varies from 105 to 130 volts. Electronic and radio equipment is therefore designed to operate at a MEAN voltage of 117 volts. Such voltage is referred to as the DESIGN CENTER voltage.

Most power or filament transformers are designed on a basis of a primary e.m.f. of 117 volts. When tube heaters or filaments are placed directly across the line in conjunction with series (ballast) resistors, the calculation of these ballast resistor values should be based upon a 117 MEAN line voltage.

Most tubes are designed so that they function normally even though the line voltage varies to the extent of 12.5 volts above or below this mean value. However, when the line voltage fluctuates constantly it is best to incorporate voltage-stabilizing devices in order to prolong the life of the tubes and other parts in the circuit.

BATTERY-OPERATED TUBES: Tubes requiring a filament voltage of 1.4 volts may be operated from 1.5-volt dry cells. The filament voltage for such tubes should at no time, however, exceed 1.6 volts.

If other sources of supply are used for these tubes, such as a 2.0 volt storage cell or a 2.0 volt a-c transformer, sufficient resistance should be inserted in series with the filament so as to maintain this voltage within the limits of 1.25 minimum and 1.6 volts maximum; regardless of how much the supply voltage may vary.

In many cases, it is not necessary to use "C" battery bias voltage with tubes of this type when AVC is used to control their grids.

2.0-VOLT TUBES: These tubes should be operated within a minimum and maximum voltage limit of 1.8 volts to 2.2 volts.

CHARGER-EQUIPPED 6-VOLT BATTERY OPERATION: Where a charger is constantly connected to the battery, such as on automobiles or where the receiver is operated from a 6-volt farm-lighting plant, a DESIGN CENTER voltage of 6.6 volts should be used. The plate and screen voltages, dissipation wattage, and the current output of rectifier tubes should not exceed 90% of the maximum values listed under the characteristics of these type tubes.

PLATE AND SCREEN DISSIPATION: Maximum plate wattage dissipation occurs during the "zero-signal" periods in Class A1 operated tubes. Maximum screen dissipation generally occurs at the time of maximum signal amplification, when the input signal voltage is of such intensity that it equals the bias voltage.

In Class B amplifiers, maximum plate dissipation occurs (theoretically) at approximately 63% of the "maximum-signal" period.

In translator, converter or "mixer" (1st-detector) tubes, normal plate wattage dissipation varies with the oscillator frequency. Since the oscillator output has a biasing effect--and since this output varies with the frequency--the plate wattage dissipation increases at those frequencies at which this biasing effect decreases. It is important that the maximum screen wattage dissipation does not exceed 10% of the rated value at any part of the signal-input cycle.

SCREEN VOLTAGES: In most cases, the screen voltages are not critical; as long as they do not exceed the plate voltage.

WESTERN ELECTRIC VACUUM TUBES

Code Number	Classification	I_f or I_h Amperes	E_f or E_h Volts	E_b Volts	E_c Volts	E_s Volts	I_b Mils	μ	r_p Ohms	Principal Socket	Principal Use
1010 D86326	F-3	0.97	4.4	130	-9.		8.	5.9	6,000	100-L	C,M,R,T
101F	F-3	0.485	4.0	130	-8.		7.	6.5	6,000	100-L	C,M,T
1020,G	F-3	0.97	2.0	130	-1.5		0.75	30.	60,000	100-L	C,M,P,R,S,T
102F	F-3	0.485	2.0	130	-1.5		0.75	30.	60,000	100-L	C,M,T,S
1040 D86327	F-3	0.97	4.4	130	-22.5		20.	2.5	2.300	100-L	C,M,T
2050,E	F-3	1.6	4.5	350	-22.5		33.	7.	3,500	100-M	C,P,R
2050,E	F-3	1.6	4.5	130	-9.		5.	6.8	6,600	100-M	P
2110,E	F-3	3.	10.0	750	-30.		65.	12.5	3,200	112-A	P,R
2120	F-3	6.	14.0	1500	-60.		130.	16.	2,000	113-A	P,R
215A	F-3	0.25	1.0	67.5	-6.		1.	6.	18,000	125-B	R,M
2310	F-3	0.06	3.1	130	-8.		2.1	8.	16,000	130-B	C,R,M
232A*	F-3-W	61.	20.0	18,000	-450.		2000.**	40.	7,000	132-A	R
236A*	F-3-W	41.	21.5	15,000	-400.		1500.**	40.	7,500	132-A	R
239A	F-3	0.27	1.1	100	-8.		2.2	6.	15,000	130-B	P,R,M
240A*	F-3-W	41.	21.5	10,000	-250.		2000.**	40.	9,000	Spec.Mtg.	R
241A	F-3	6.	14.0	1,500	-100.		200.**	16.	2,150	119-A	R
242A	F-3	3.2	10.0	1,000	-45.		94.	12.5	3,500	112-A	R,P
244A	H-3	1.6	2.0	135	-6.		5.5	10.	10,000	137-A	P
245A	H-4-S_o	1.6	2.0	180	-1.5	45	5.1	170.	220,000	137-A	C
246A	F-4-S_o	0.10	3.4	135	-1.5	45	1.5	285.	725,000	130-B	R
247A	H-3	1.6	2.0	135	-4.5		3.3	15.	16,000	137-A	P,M
248A	F-3	3.	10.0	750	-30.		66.	12.	3,500	112-A	R
251A	F-3	15.6	10.0	3,000	-300.		500.**	10.5	2,250	Spec.Mtg.	R
252A	F-3	2.0	5.0	450	-65.		43.	5.1	1,700	130-B	P
254B*	F-4-S_o	3.25	7.5	750	-60.	150	75.**	100.	75,000	130-B	R

257A	F-3	0.06	3.1	135	-8.5		2.	7.8	16,000	130-8	C
259A	H-4-S	1.6	2.0	180	-1.5	75	5.5	550.	400,000	137-A	C,R
260A*	F-4-S°	3.2	10.0	2,000	-100.**	300	100.**	200.	175,000	130-8	R
261A*	F-3	3.25	10.0	1,000	-80.		150.**	12.	3,500	112-A	R
262A	H-3	0.32	10.0	135	-4.5		2.8	15.4	16,600	130-8	P
264A	F-3	0.30	1.5	100	-8.		2.1	7.	13,000	130-8	P,R,M
265A*	F-3-W	183.	22.	18,000	-550.		8000.**	32.	2,250	Spec.Mtg.	R
268A	F-3	3.25	5.0	500	-30.		48.	5.	5,000	130-8	N
270A*	F-3	9.75	10.0	2,500	-150.		200.**	16.	1,800	Spec.Mtg.	R
271A	H-3	2.	5.0	350	-25.		35.	8.6	2,900	137-A	R,N
272A	H-3	0.32	10.0	140	-15.		5.4	5.5	7,200	137-A	R,P
275A	F-3	1.2	5.0	200	-45.		46.	2.9	1,000	130-8	P,N
276A	F-3	3.0	10.0	750	-30.		70.	12.	3,500	112-A	R
281A	F-4-C°	1.6	5.0	150	-60.	70[E_n]	35.	5.	3,500	137-A	C
283A	H-4-V°	1.6	2.0	180	-1.5	75	5.8	650.	475,000	137-A	
285A	H-5-PP	1.6	2.0	180	-12.	150#	9.	130.	145,000	137-A	

*Power tube values based on use as Class "B" Amplifiers.
**Values given correspond to maximum output.
#Suppressor grid at cathode potential (0).

Code for "Classification"

H - Heater type cathode
F - Filament type cathode
3,4,5 designate number of electrodes
S - Screen grid tube
C° - Coplanar grid tube
PP - Power Pentode
W - Water-cooled power tube
V - Variable amplification screen grid tube

Code for "Principal Use"

C - Carrier
M - Measurements
P - Public Address and Program Pickup
R - Radio Transmitters and radio receivers
S - Signaling
T - Telephone repeaters
N - Non-associated applications - i.e., sound motion picture equipment